Understanding MIFARE for NFC

Essentials on MIFARE solutions deployed for Mobile NFC

MIFARE solutions are massively deployed mainly for Transportation & Physical access services, with existing legacy infrastructures already on the field.

Such solutions can be implemented via Mobile NFC Secure Element & Handset applications, also benefiting from connectivity & User Interface of handset.

This course will provide the necessary knowledge to understand how such solutions can be designed, deployed & used in the Mobile NFC ecosystem.

At the end of the training you will:

> Have an overview of the different MIFARE solutions & their main use cases & markets

> Understand how MIFARE services can be integrated & used in Mobile NFC solutions

> Get feedback on existing deployments, with lessons learned & best practices

> Have an idea on future evolutions of MIFARE-related services…

Who should attend?

Telecom, Transport, Bank staff:

> Programme/Project Managers

> VAS staff

> Architects

> Security Managers

> Integration & Test Staff

> SIM managers

> System developers

> …

Pre-requisites:

> Overview on NFC Ecosystem & technology recommended

This course is held in English.
# PROGRAM

## Introduction to MIFARE technology & market

- **What is MIFARE?**
  - Specifications, history, licenses,…

- **Overview of different MIFARE protocols**
  - Classic, DESFire,…
  - Positioning with other solutions (Calypso, Felica, EMV…)

- **Main use cases**
- **Markets & deployments**

## MIFARE basics

- **Protocol (commands, timing…)**
- **Mappings**
- **Files**
- **Security**
- **Demos**
  - Reading plastic MIFARE cards characteristics

## MIFARE »: from plastic cards to Mobile NFC solutions*

- **Overview - MIFARE applications in Secure Element/Mobile - User Interface**
  - Going Mobile…benefits & constraints (UI, connection, RF, CLF, CLT…)
  - Classic, DESFire application basics
  - Compatibility between themselves & with other SP apps
    - RF parameters: UID, SAK,…

## MIFARE4Mobile*

- **What is it? Why?** (need for interoperability…)
  - Specifications & history

- **How does it work**
  - User experience
  - Basic functionality

- **Actors Roles & Solution architecture & Flows**
  - SE applets, UI apps, OTA management

- **M4M evolutions & Trends (V1 – V2…)**

* Including Mobile NFC “MIFARE” integration & Deployment factors

- **UICC:**
  - OS specifics, configuration of UICC, activation/deactivation
  - “MIFARE” related applets, codecs & specific data
  - Pre-loaded, post-issuance of applications, data perso

- **Handset:**
  - UI apps, security (GP SE AC) other?
  - User experience (selection, by default, other?)
  - Multi-SP/app schemes
  - NFC Compatibility with existing infrastructure
  - Testing & Validation in transport/access/payment context
    - reader issues, legacy issues

- **Recommendations for Handset manufacturers**

- **Remote management of solution:**
  - OTA, POS?
  - What can & cannot be done remotely
  - SP interaction

- **Trusted Service Management with TSH, SP & MNO-TSM:**
  - Compatibility, Architecture examples, full life-cycle management, specific services (ex: top-up)
  - Lessons Learned & Best Practices for transport, other…

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* GEMALTO.COM
Mobile training Program
Fundamentals & Technology