Near field communication (NFC) mobile payment service in Hong Kong

Industry Forum

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HKMA's effort in promoting NFC mobile payment

Commenced NFC study

- Collected feedback from the local market on NFC mobile payment

- Recommended a development strategy fit for Hong Kong

- Aroused interest of the market and the public in NFC mobile payment

Formulated development strategy

- Formulated the four long-term development objectives in NFC mobile payment

- Support a market-driven approach for shared infrastructure development

- Facilitated the formation of NFC task force under the Hong Kong Association of Banks (HKAB)

Develop guidelines and standards

- Facilitated the discussion and finalisation of the Best Practice with HKAB

- Continue to monitor and support the development of NFC mobile payment in Hong Kong

| Q3 2012 | March 2013 | November 2013 |

Market development in 2013

1. Payment service issuers gradually launched NFC mobile payment services

   ☐ 4 banks launched NFC mobile payment services, compared with 1 bank last year

   ☐ 1 more bank has recently announced the launching of NFC mobile payment service in the near future

2. Mobile payment products extended from credit card to stored value card

   ☐ A stored value mobile wallet was launched in October 2013

3. Development of shared infrastructure

   ☐ A card association will complete the development of shared infrastructure early next year to support mobile payment services to be launched by its member banks

Forecast for next year's development

1. New market participants joining the market

☐ Other than existing players which already include 5 banks, 1 stored value card association and 2 card associations, other banks and card associations are planning to launch NFC mobile payment services

2. More mobile network operators (MNOs) supporting NFC

☐ In addition to 2 MNOs which have launched of NFC mobile payment services, 2 more MNOs will launch the services next year

3. Multiple payment cards on a single SIM card

☐ Product suppliers are working on a technology breakthrough to integrate both credit cards and stored value cards on a single SIM card

Diversified market development and the development of shared infrastructure leading towards an interoperable environment

Issuance of Best Practice

- An NFC task force established under HKAB has worked with the HKMA to discuss and agree on a set of standards and guidelines

- After a few months' effort, the Best Practice is issued by HKAB as an industry guideline for its member banks to follow

- The Best Practice covers the following areas:

  1. Security requirements : to ensure security of services

  2. Technical standards：to facilitate interoperability among different NFC infrastructures, mobile devices and terminals by adopting widely applied industry and international standards

  3. Operational processes : to enhance user experience by introducing standardised operational process

Best Practice supports the long term development of NFC mobile payment

End-users (To benefit from market development)

Service providers (e.g. banks)

Four development objectives

Achieve the long term objectives of interoperability and a high level of security

Mobile payment services

High level of security enhances user confidence

Mobile payment infrastructure

Facilitate interoperability among different infrastructures with common standards and guidelines

Best practice

Pave the way for the long term development of NFC mobile payment

HKMA

HKAB

Best Practice – security requirements

- The HKMA will take into account the security requirements in the Best Practice in its supervision of NFC mobile payment services to maintain a consistent and high level of security

- The security requirements include measures:

  - to secure the generation, transmission and storage of payment card data in mobile payment infrastructures

  - to ensure security during the execution of payment transactions

  - to protect payment card data and transaction data

Best Practice – technical standards

- Adopt technical standards set by industry and international organisations

- For example:

  - ISO standards: specifying the communication protocols between mobile phones and contactless readers

  - ETSI standards: specifying the communication protocols between mobile phones and secure elements

  - GlobalPlatform standards: specifying the protocols on TSM-to-TSM communication and secure element architectures

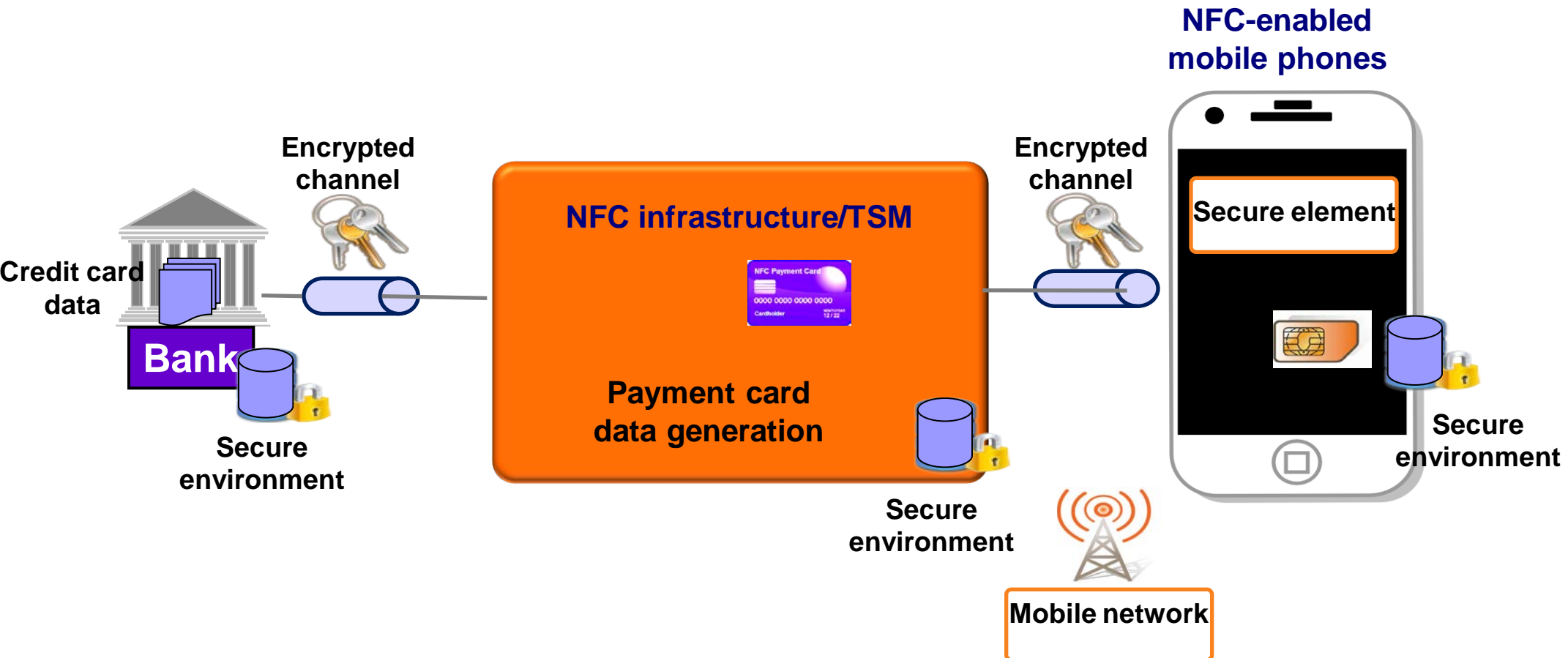 - EMVCo standards: specifying payment card security and personalisation

ISO   : International Organization for Standardization
ETSI   : European Telecommunications Standards Institute
EMV   : Europay, MasterCard and Visa

Best Practice at a glance

- Payment card data should be generated and stored in a secure environment
- They should be transmitted in encrypted channels

Credit card data

Bank

Encrypted channel

Secure environment

NFC infrastructure/TSM

NFC Payment Card
0000 0000 0000 0000
Cardholder
12 / 22

Payment card data generation

Secure environment

Encrypted channel

NFC-enabled mobile phones

Secure element

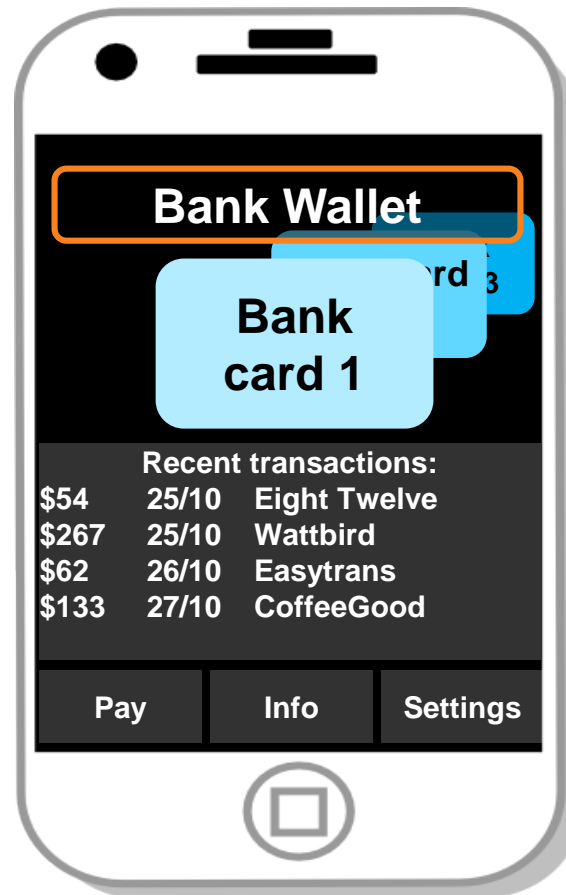Secure environment

Mobile network

Best Practice at a glance

- As a secure element can store multiple payment cards issued by different banks, only authorized mobile wallet applications can access the assigned payment cards stored in the secure element.
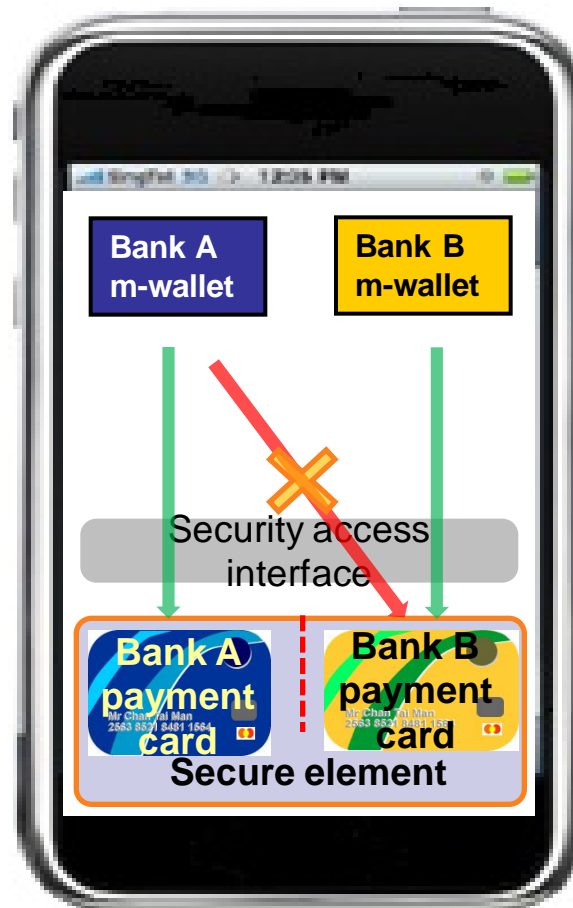
Best Practice at a glance

- Users can check transaction histories with mobile payment applications

Bank Wallet

rd 3

Bank card 1

Recent transactions:
$54   25/10   Eight Twelve
$267   25/10   Wattbird
$62   26/10   Easytrans
$133   27/10   CoffeeGood

Pay   Info   Settings

Transaction details can be reviewed in real time.

Best Practice at a glance

- Mobile credit cards follow the existing no-signature limit on contactless credit cards. Currently, the highest limit is HK$1,000 per transaction.

- If the transaction amount exceeds the limit, additional security measures, such as signature or password, are required.

	Per transaction value	
	Within the transaction limit	**Exceed the transaction limit**
Payment Operation	**Tap your card**	**Require additional security measures**

Best Practice is conducive to a favourable market environment

- The Best Practice enables banks, mobile network operators and card associations to launch new NFC mobile payment services based on the same set of standards and guidelines, helping to achieve the four development objectives and interoperability among different services in the long-term.

- The HKMA will take into account the security requirements of the Best Practice in its supervisory process. Together with Hong Kong's favourable market conditions, this will enhance public confidence and build a solid foundation for the wide acceptance of NFC mobile payment services in Hong Kong.

Speech by HKAB and panel discussion