

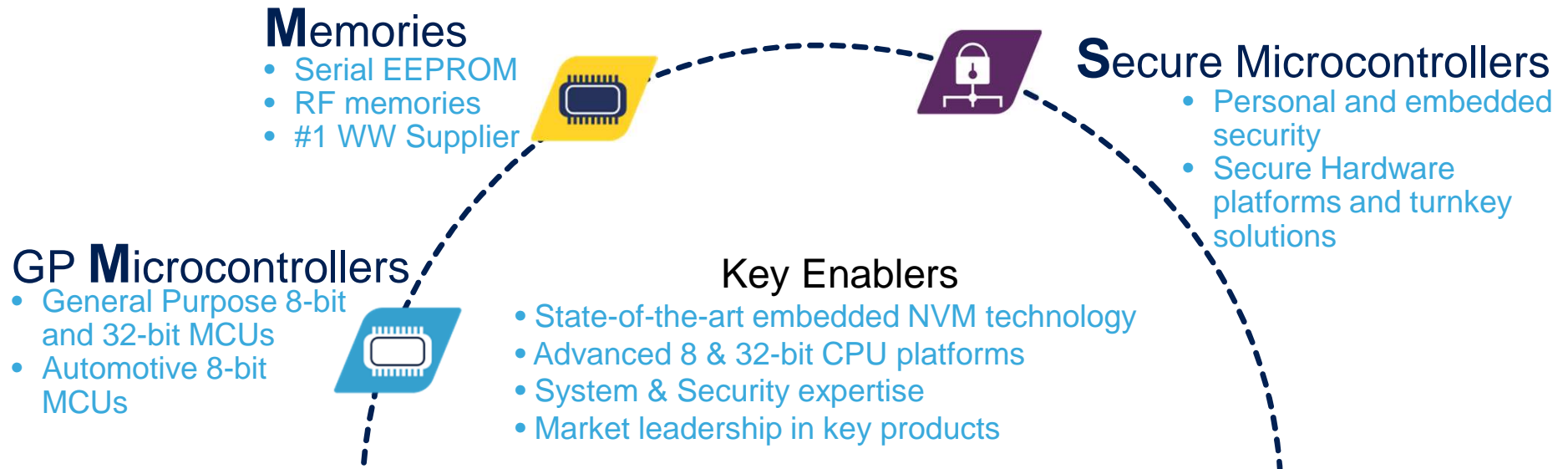


# STMicroelectronics Payment Solutions

December 6<sup>th</sup> 2012

# Microcontrollers in MMS Group

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## Supporting our target markets



SmartGrid / Industrial



Healthcare



Appliances

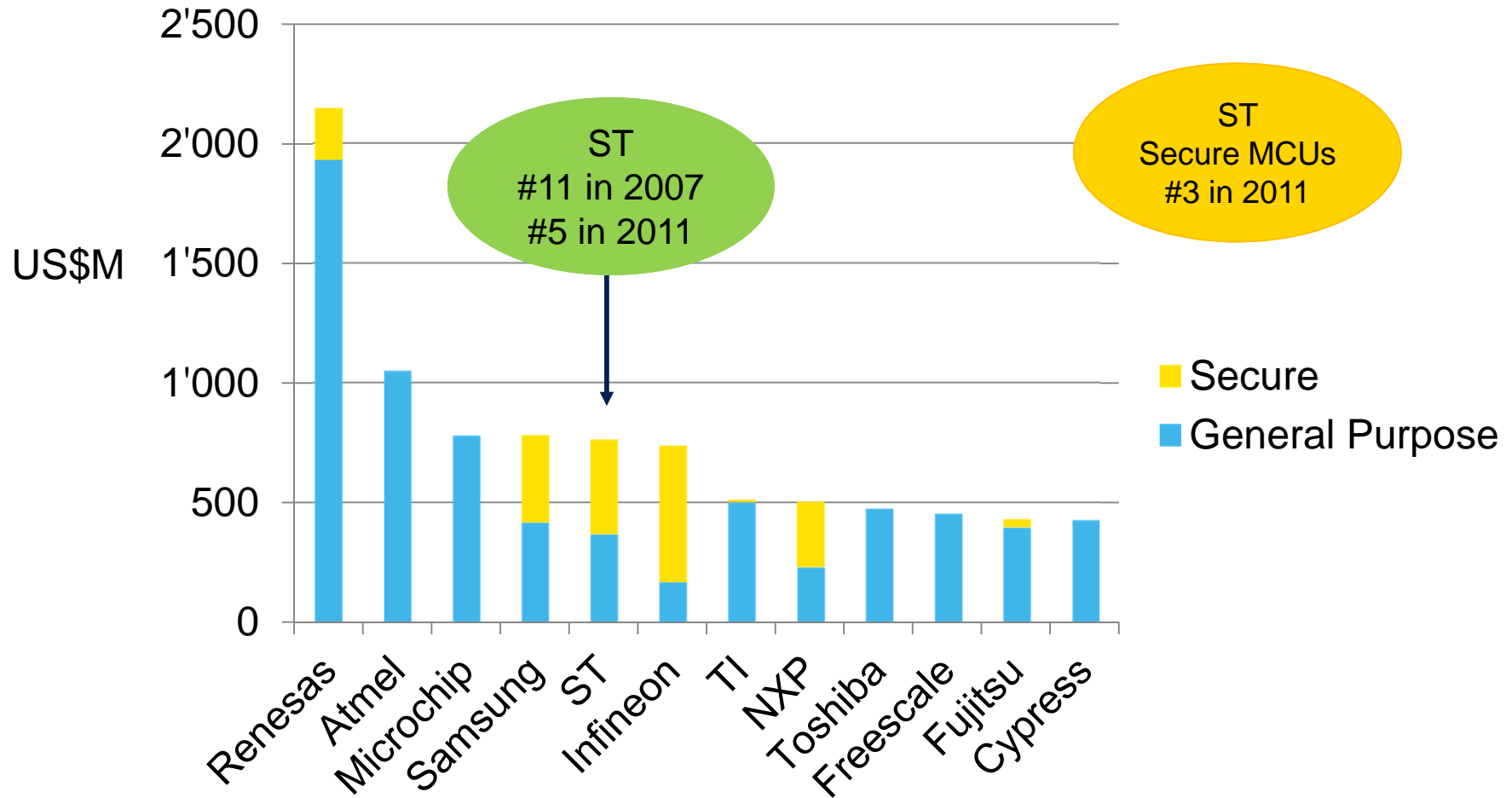


Consumer



Security

# 2011 WW GP & Secure MCUs Revenues



Source: IHS iSuppli , March 2012

# Microcontrollers- ST key assets

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- Advanced e-NVM technology road map
  - e-Flash → 90nm (mass production)
  - e-EEPROM → 90nm (mass production)
- CPU architecture
  - 8 bit → ST
  - 32 bit → ARM Cortex M
- Wireless connectivity
  - Multi standard 2.4GHz RF solutions : Zigbee, BTLE, WiFi direct
  - Multi standard 13.56MHz RF solutions : ISO 11443 (A,B,F), NFC
- Added Values
  - Advanced analog and ultra low power capabilities for GP MCUs
  - Advanced security and turn key solution capabilities (HW+SW) for Secure MCUs

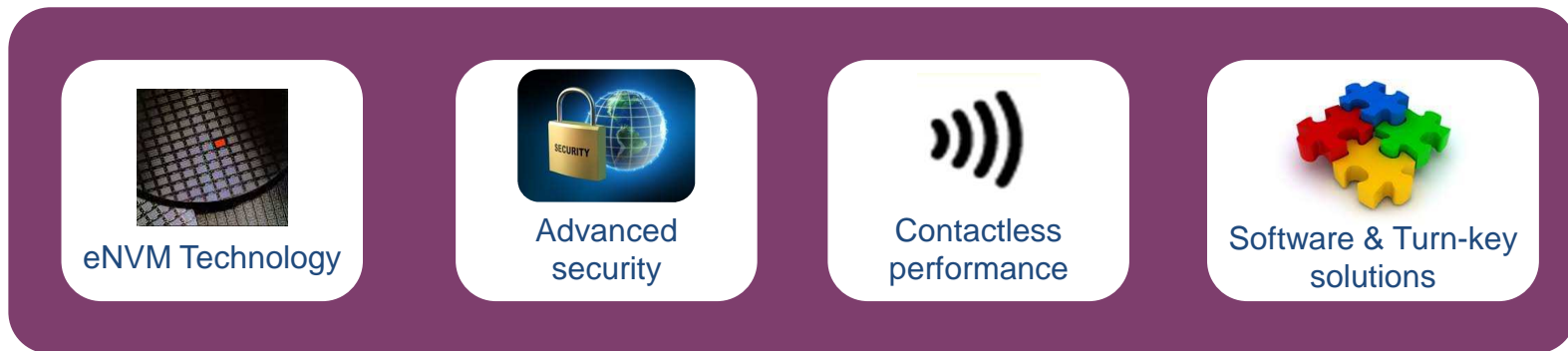


# Secure MCUs Perimeter

## Market

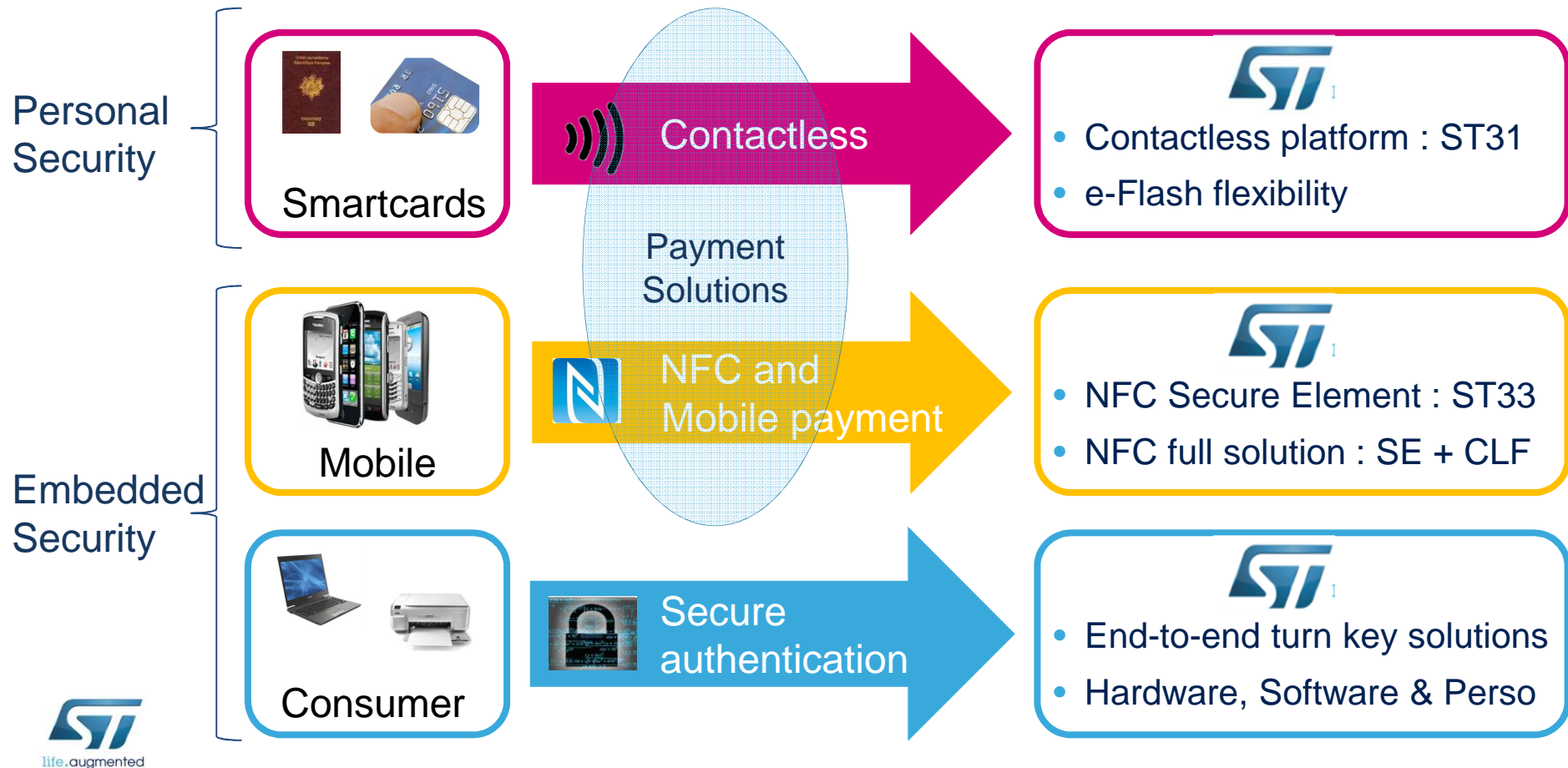


## Enablers

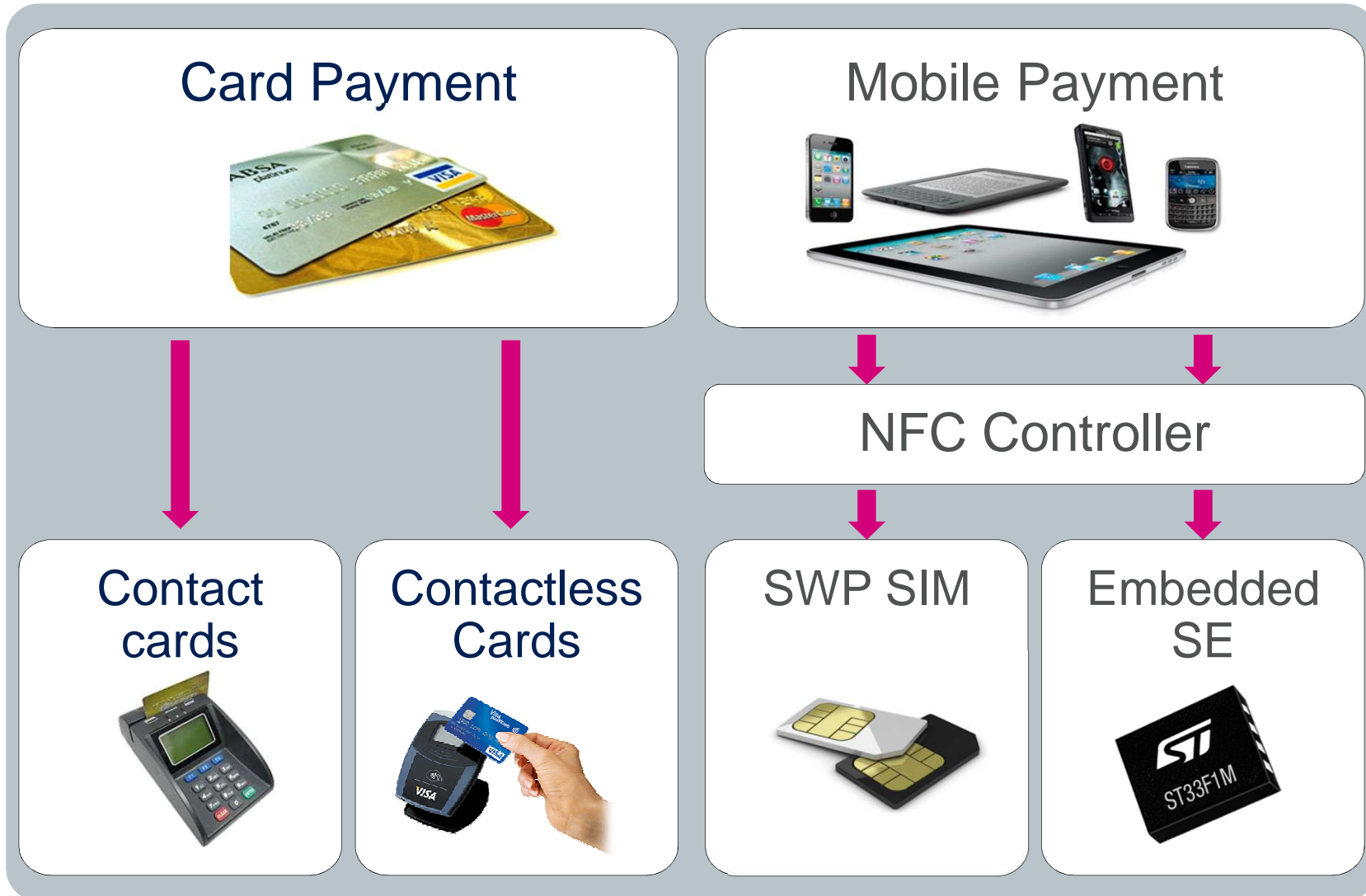


# Secure MCUs Growth Drivers

Market growth driven by mobility, contactless convenience and an increasing need of security / authentication in digital World (consumer,...)

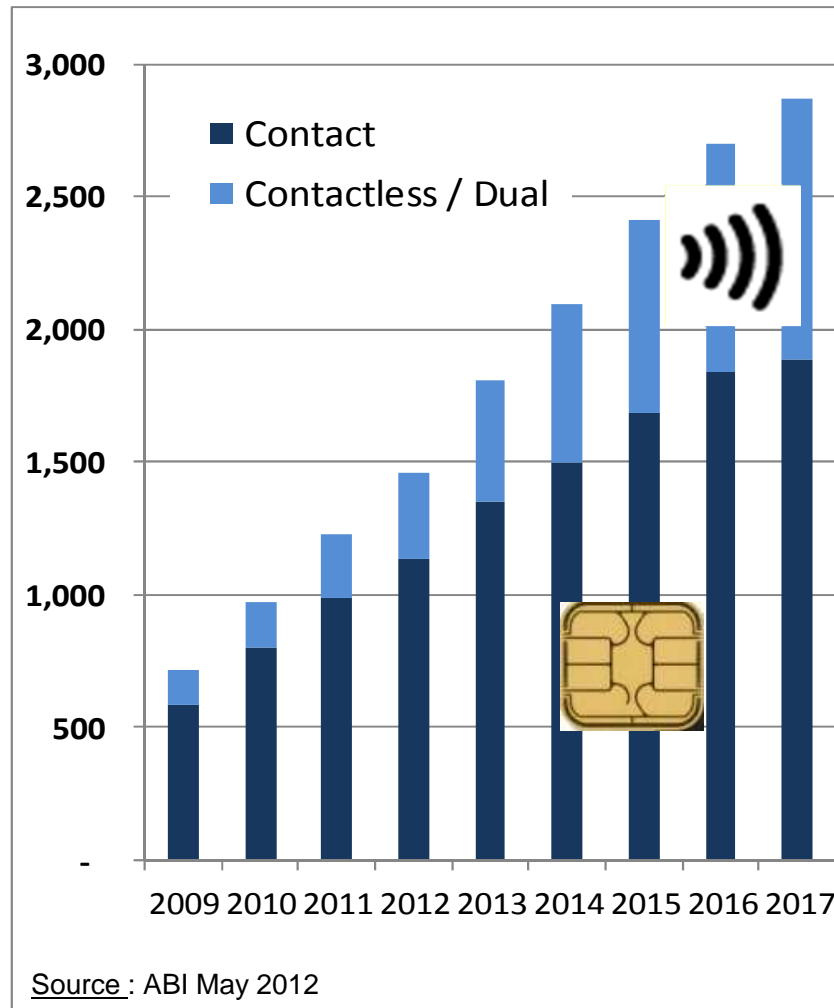


# ST Payment Solutions



# Card Payment IC's market trend

Munits



## EMV Contactless



- Migration started in Europe, Asia, China
- China and US to drive coming growth



## EMV contact



- Still strong mag stripe to chip card migration
- SDA to DDA migration in Europe



# ST IC's for Card Payment

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... 2012

## ST23Y – ST23Z

EEPROM 90nm  
NVM : 4 – 48 KB  
ISO 7816  
ISO 14443 Type A/B  
EMVCo, CC EAL5+/6+

- Proven ST23 CPU

2012-13

## ST31Z

EEPROM 90nm  
NVM : 16 – 52 KB  
ISO 7816  
ISO 14443 Type A/B  
EMVCo, CC EAL5+

- ST31- ARM SC000 CPU
- High speed contactless
- Multi-RF protocols
- MIFARE™

2013-14

## ST31G

FLASH 80nm  
NVM : 128 - 480 KB  
ISO 7816  
ISO 14443 Type A/B/F  
EMVCo, CC EAL5+/6+

- ST31- ARM SC000 CPU
- Flash flexibility
- High speed contactless
- Multi-RF protocols
- MIFARE™

MIFARE is trademark of NXP Semiconductors

# ST leader in IC's for Card Payment

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## Card Payment



## Contact cards

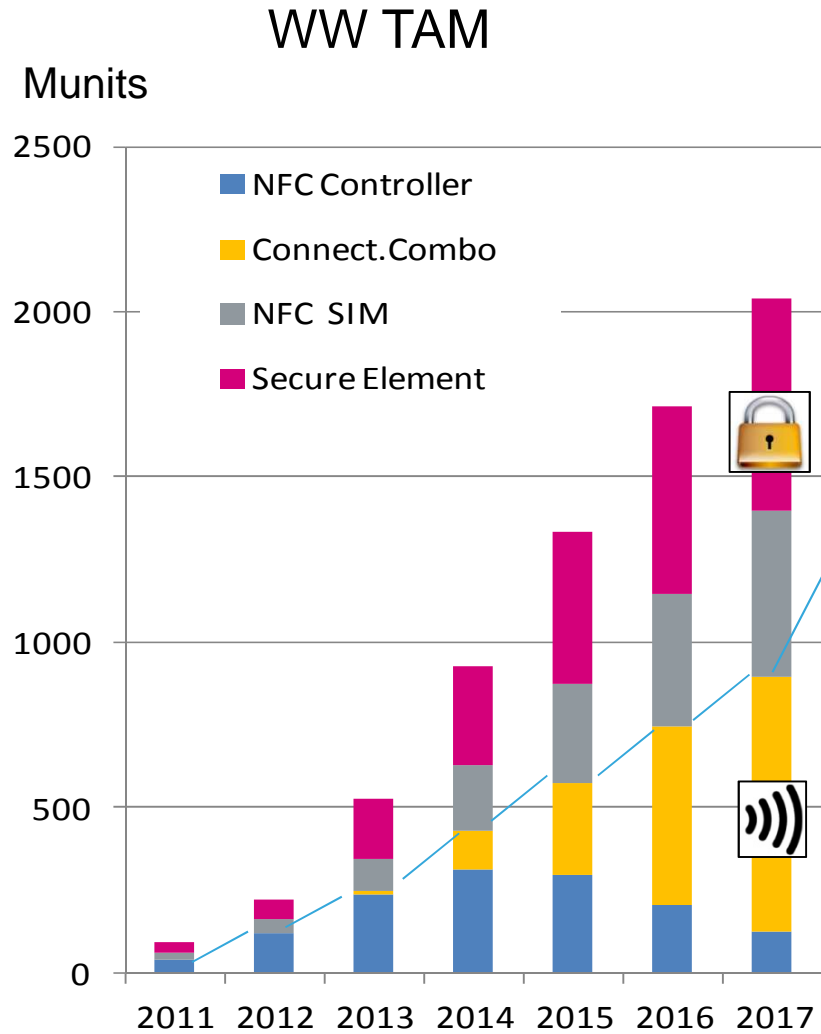


## Contactless cards




- ST banking market share 2011 > 20% (ST estimates in volume)
- Strong position in Latin America, Western Europe and Asia
- More than 1 Bunits Smartcard ICs shipped for Banking cards

# Mobile Payment Market Trend




**Embedded Secure Element (e-SE)** 

- Strong Relation to OEM Handset manufacturers
- Large market segment over medium/long term
- Key driver for NFC Payment Applications

**SWP-SIM** 

- Massive migration started in 2012
- Deployment started in all regions
- Key Driver for NFC Payment Applications

**Connectivity Combo** 

- Controller integrating all short-range connectivity (WiFi, Bluetooth, NFC)
- It will gain significant share only in long/medium term.

**Standalone NFC Controller** 

- Massive deployment in 2012
- Will still represent majority of NFC controllers shipment the next 2 years

Source : Eurosmart, ABI, internal ST \_ November 2012

# Mobile Payment → NFC

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RF controllers



Secure Elements

Source : ABI Q312

- ❑ ~10 handset makers now offer at least one NFC-enabled model
- ❑ Volume shipments :
  - ~100Mu in 2012
  - ~200Mu in 2013

Source : Eurosmart Q312

- ❑ Secure NFC devices include NFC enabled UICCs, embedded SE and other form factors of NFC enabled SE.
- ❑ Volume shipments:
  - ~100Mu in 2012
  - ~200Mu in 2013.

OEMs

Mobile Network Operators

OEMs & Google

NFC controller deployment

Secure SWP-SIM deployment

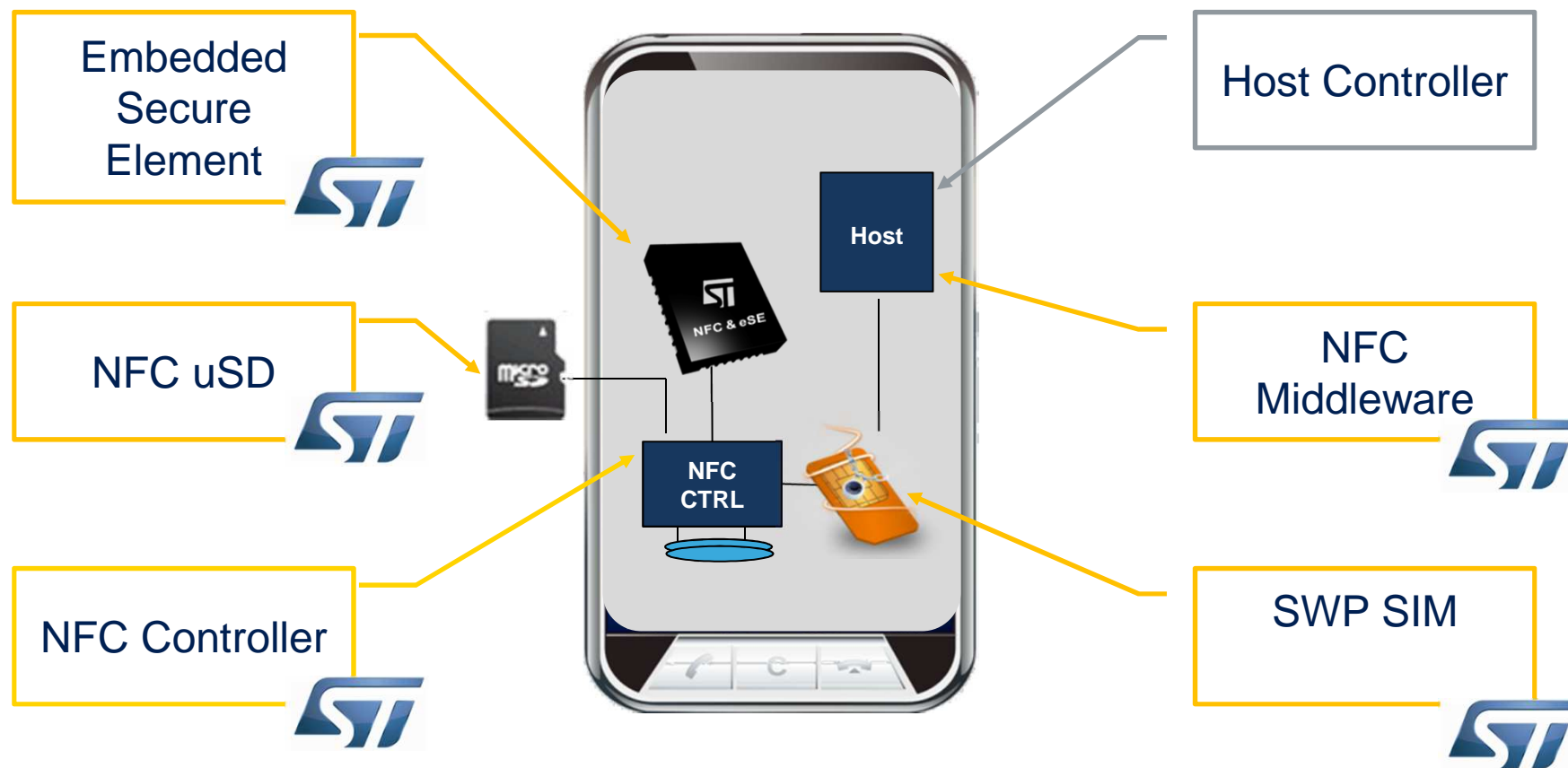
Embedded Secure Element

NFC drives massive deployment of NFC controllers, Secure SIM and Embedded Secure Elements, all co-existing into a smartphone

# ST in Mobile Payment

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## NFC in Mobile Handsets



# ST Solutions for Mobile Payment

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## NFC SIM

- **ST33 family**, in mass production
- MIFARE enabled



## Secure NFC uSD

- **ST33 family**, in mass production
- uSD and custom packaging



## Embedded Secure Element

- **ST33 family**, in mass production
- Secure Java OS, EMVco & GP2.2 certified
- MIFARE enabled



## NFC Controller

- **ST21NFCA**, Fully qualified
- Android “Ice Cream Sandwich, Jelly Bean” & WIN8 compatible

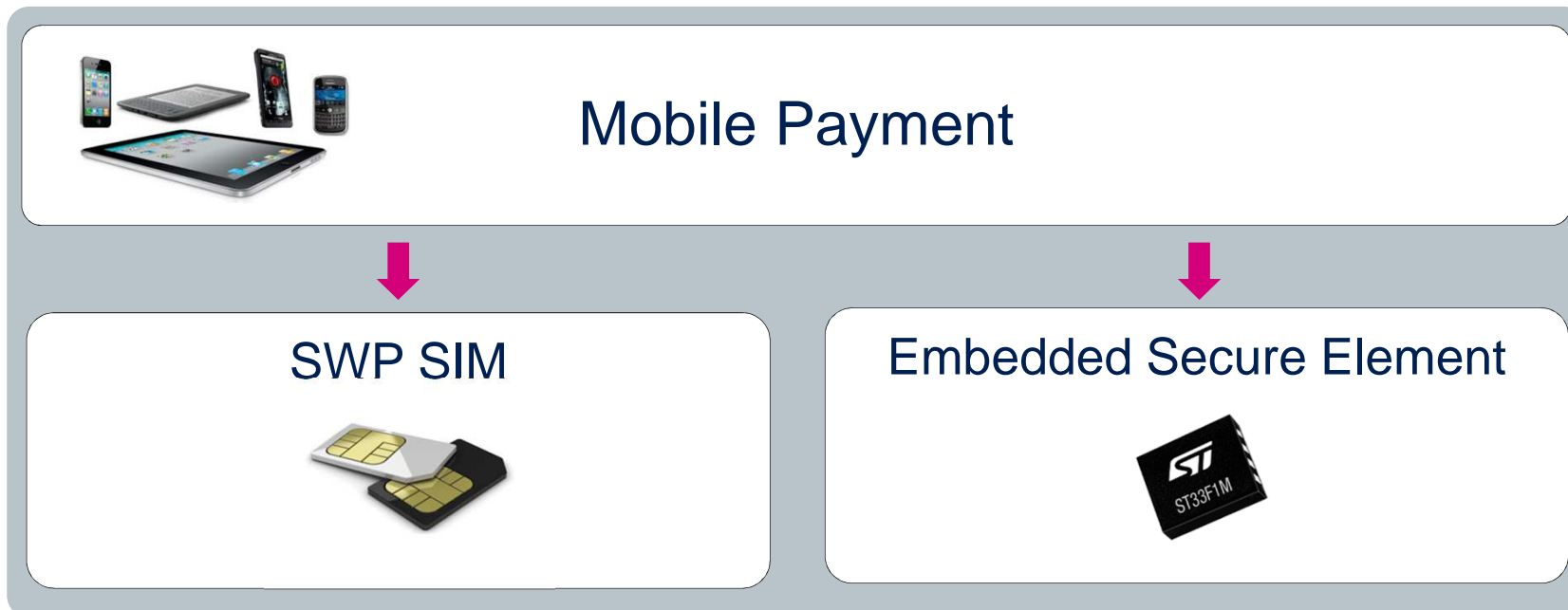


## Integrated SE/NFC

- **ST21NFC + ST33 + Secure Java OS**
- Android Ice cream sandwich, Jelly Bean & WIN8 compatible
- Stacked solution, Effective footprint optimization

# ST leader in Secure Elements

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- ST leading position with SWP-SIM market share >> 50% in 2012
- Leadership position on SIM in all regions where NFC is deployed
- ST started shipment of Embedded SE for Android devices



- ST solid leader in Secure Payment solutions
  - Above 20% market share in IC's for Card Payment
  - Above 50% market share in SWP-SIM ICs for Mobile Payment
  - Ramping up Secure Element for Android devices



- Solid experience and broad range contactless offer
  - RF multi-protocol ISO 14443 Type A, B and F
  - NFC Controller for Smartphones
  - MIFARE™ libraries for contactless Transport



- Leader in Security
  - First to achieve Common Criteria EAL6+
  - Support certified cryptography library