EMV: Next Steps in the Journey
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Agenda

- EMV Review
- The Road Ahead
- EMV Certification
- Certification Scope
- Certification Roles
- Terminal Options
EMV Review
Brief History of Chip Cards

- Chip-based payment cards introduced in the 1980’s
  - High communications costs and unreliable service
  - Offline processing susceptible to fraud
- Specifications developed country by country
  - Interoperability issues
- Europay, MasterCard and Visa
  - Joint effort to develop common specification
  - EMVCo formed in 1999
    - Now includes Amex, Discover, JCB and CUP
What is EMV?

• International standard defining interoperability of secure transactions
  › Introduces **dynamic data** specific to the transaction
  › **Devalues** transaction data; reducing risk of counterfeit fraud

• World-wide adoption including U.S. neighbors, Canada and Mexico
  › Effecting U.S. multi-national retailers

• Enabler of future payments types
  › Contactless, Mobile

• Chip & PIN ≠ EMV
What is EMV?

• Chip on card uses cryptography to provide security
• Utilizes 2 forms of cryptography
  › Digital signatures – ensures data is **authentic**
  › Encryption – ensures data is kept **confidential**
• Digital signature devalues the data
  › Even if data is intercepted, signature cannot be replicated
• Encryption is only used to protect the PIN
  › EMV does **not** encrypt all transaction data
EMV in the Security Equation

- **Theft**
  - Physical Attacks
  - System Breach
  - Account Data Compromise

- **Fraud**
  - Counterfeit Cards
  - Lost/Stolen Cards

- **EMV**
  - Chip
  - PIN

- **P2PE/Tokens**

- **Policy & Inspection**

- **PCI DSS**

- **EMVCo**
Why EMV – Global Fraud Trends

**Counterfeit Fraud Volume (Visa only)**

- **Europe** (Liability Shift in 2005): -56%
- **Asia Pacific** (Liability Shift in 2006): -52%
- **U.S.** (Liability Shift in 2015): +307%

**U.S. and Rest of World Sales Volume 2012**

- **U.S.** $5.1T
- **ROW** $16.5T
- **U.S. and Rest of World** $18.5T

**U.S. and Rest of World Fraud Volume 2012**

- **U.S.** $5.3B
- **ROW** $5.9B
- **U.S. and Rest of World** $11.2B
Impact on Card Not Present

- Increase in CNP fraud is driving other solutions
  - 3-D Secure
  - Tokenization
  - Chip authentication devices

* Retail Payments Risk Forum Working Paper
  Federal Reserve Bank of Atlanta
  January 2012
The Road Ahead
Brand Roadmaps

**Visa**
- **April 2013**: Processors must support EMV
- **April 2015**: 3rd party ATM must support EMV
- **October 2015**: Liability shift for counterfeit transactions
- **October 2017**: Liability shift for AFD

**MasterCard**
- **April 2013**: Processors must support EMV
- **October 2015**: Liability shift of counterfeit transactions
- **October 2016**: Liability shift for ATM
- **October 2017**: Liability shift for AFD

**Discover**
- **April 2013**: Processors must support EMV
- **October 2015**: Liability shift of counterfeit transactions
- **October 2017**: Liability shift for AFD

**American Express**
- **April 2013**: Processors must support EMV
- **October 2015**: Liability shift of counterfeit transactions
- **October 2017**: Fuel liability shift

*A Regional Debit Network solution proposal has been released by the EMV Migration Forum*
The EMV Implementation Journey

- EMV is ultimately about a Merchant’s brand
  - Delivery is ultimately about managing what can be a complex cross-functional project
The Road Ahead

Awareness

Engagement

Delivery
The EMV Implementation Journey

• Awareness
  › Merchant has limited or base understanding of EMV
  › Merchant does not have any formal projects in flight

• Gaps to bridge
  › Organizational education and engagement
  › High-level scope of effort to implement EMV
The EMV Implementation Journey

• Engagement
  › Merchant approves effort to move forward with EMV
  › Merchant prioritizes EMV versus other projects
  › Merchant defining scope/plan and allocating budget and resources

• Gaps to bridge
  › Defining and approving plans
  › Roadmap definition
  › Approval of budgets
  › Staffing of team
The EMV Implementation Journey

• Delivery
  › Merchant in process of enabling EMV
  › Merchant making scope decisions
  › Suppliers engaged and actively working project

• Gaps to bridge
  › Contracts with suppliers
  › Teams actively working plan
  › Updates to software
  › Certification planning and deployment strategy definition
Note: You can start your EMV journey without a Certification strategy, but you cannot set an end date until it is defined.
EMV Certification
EMV requires certification and validation

**Terminal**
- EMVCo terminal type approval – hardware and logic testing
- Payment network brand testing for each brand supported

**Acquirer**
- Processor Network Host Certification
- Host certification already completed by Vantiv

**Chip**
- EMV Chip application certification (Before they can be sold)
- Card Personalization validation (For each product issued)
A “terminal”, in the context of the brand terminal testing, consists of:

- The Level 1 hardware (contact IFM and/or contactless PCD)
- Level 2 kernel application
- Brand payment application
  - Includes particular terminal-to-acquirer messaging specification
- Environment (ATM, attended POS, unattended CAT, etc.)
All in the (Terminal) Family

• Different terminals models can be part of same family:
  › Same Payment Application
  › Same EMV kernel
  › Same Chip Transaction Flows

• Terminals models in same family do NOT require separate certifications
Scope of EMV Certification
Card Acceptance Device Integration

- Integration Models
  - Fully Integrated
  - Semi-Integrated
  - Stand-Alone

- Abstracting the payment process

- Impacts Certification…and Recertification
Card Present Deployments

- **Standalone**
- **Semi-Integrated**
- **Fully-Integrated**
Scope of Certification Range

**Fully Integrated Scope**

Cardholder Data Environment (CDE)

Store Systems

Central Data Center

**Stand-Alone Scope**

Store Systems

Central Data Center

Cardholder Data Environment (CDE)
Roles in EMV Certification
Merchant

• Purchases payment equipment
• Owns design of processing environment
  › Fully Integrated, Semi-Integrated, Stand-Alone
• May guide design and development processes
• Makes decision on some terminal parameters
  › Offline floor limit
• Conducts User acceptance testing
  › Internal and with Acquirer/Gateway
• Responsible for successful EMV validation
Acquirer

- Provides EMV education
- Delivers host message specifications
- Assists merchant/ISV with host message enhancement
- Provides some terminal parameters
  › TACs
- Validates merchant payment solution is EMV-ready
- Responsible for acquirer message certification
ISV

• Offers payment equipment options
  › May include semi-integrated environment
• Offers technology merchant uses to complete EMV enablement
• Develops detailed application design
• Makes logical changes support EMV
  › API updates
• Conducts unit testing with merchant and acquirer
• Responsible to certify with acquirer so merchant can complete EMV validation
Terminal Vendor

- Develops terminal kernel
- Performs EMVCo Level-1 and Level-2 certifications
- Develops terminal payment application
- Provides some terminal parameters
  ‣ Terminal Capabilities
  ‣ Terminal Type
- Supports testing and certification efforts
- Responsible for ISV API Integration
Stand-Alone Terminal Options

- October 2013: MasterCard allows for account data compromise relief if 75% of transactions from compliant terminals.
  - 50% relief on fines and repayment to issuers for breached accounts.

- October 2015: MasterCard allows for account data compromise relief if 95% of transactions from compliant terminals.
  - 100% relief on fines and repayment to issuers for breached accounts.

Program only covers operational and fraud recovery portion of breached merchant’s liability. Does not apply to investigation costs, remediation expenses or non-compliance fines.
What are the terminal options?

- Terminal Deployment Options
  - Single device (All options built in)
  - Combination of Merchant Facing Device (MFD) and Customer Facing Device (CFD)

- Vantiv recommends the MFD/CFD option. Why?
  - Ease of PIN entry when required
  - Studies show that merchants are not willing to hand terminal over the counter to customers
  - Smaller merchants get big retailer customer experience with MFD/CFD combination
Ingenico Single Device Options

Ingenico iCT250
- EMV Reader
- Mag Stripe Reader
- Contactless Reader
- Color Screen

Ingenico iWL222, iWL252, iWL255
- EMV Reader
- Mag Stripe Reader
- Contactless Reader
- Color Screen (252/255)
- Wireless connectivity
  - Bluetooth (222/252)
  - GPRS (255)
Ingenico MFD/CFD Options

Ingenico iCT220 with iPP320

- EMV Reader
- Mag Stripe Reader
- Black/White Screen
- Contactless reader in PIN Pad

Ingenico iCT250 with iPP320

- EMV Reader
- Contactless Reader
- Mag Stripe Reader
- Color Screen
- Contactless reader in PIN Pad
VeriFone Single Device Option

VeriFone Vx520DC-Contactless

- Terminal includes:
  - EMV Reader
  - Contactless Reader
  - Mag Stripe Reader
  - Dual-Comm connectivity

<table>
<thead>
<tr>
<th>Feature</th>
<th>Description</th>
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<tbody>
<tr>
<td>NFC enabled</td>
<td>Supports contactless payments, including Apple Pay</td>
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<tr>
<td>EMV capable</td>
<td>Requires full download in 2015</td>
</tr>
<tr>
<td>P2PE capable</td>
<td>Requires full download in 2015</td>
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<tr>
<td>PIN Debit</td>
<td>Integrated PIN Pad in terminal</td>
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<tr>
<td>Gift Card</td>
<td>Vantiv Gift Card program is supported</td>
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<tr>
<td>PCI</td>
<td>PCI PED 3.0 certified</td>
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<tr>
<td>3rd Party Apps</td>
<td>UTA Check Guarantee, other apps are TBD</td>
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VeriFone MFD/CFD Options

VeriFone Vx520DC – Contactless with Vx820
• EMV Reader in Vx520 CTLS & Vx820
• Mag Stripe reader in Vx520 CTLS & Vx820
• Contactless reader in Vx520 CTLS & Vx820
• Touch/Color screen on Vx820

VeriFone Vx520DC - Contactless with Vx805
• EMV Reader in Vx520 CTLS & Vx820
• Mag Stripe reader in Vx520 CTLS & Vx820
• Contactless reader in Vx520 CTLS & Vx820
• White Backlit screen on Vx805
EMV Reference Information

- Vantiv.com/emv
- www.emvco.com
- http://www.emv-connection.com/
- http://www.smartcardalliance.org/