

EMV is coming.

**Here's how to stay ahead of
the trend.**

Presented by CO-OP Financial Services

October 25, 2012



Be There Be More

Agenda

- What EMV is and how it works
- U.S. and global adoption
- Impact to the payments ecosystem
- Recommendations for your credit union
- Live Q & A

EMV Webinar Overview

EMV Webinar Overview

- EMV widely accepted abroad, coming to the U.S.
- U.S. Financial Institutions are assessing EMV deployment
- Questions such as:
 - What must we do?
 - What does the business case look like (i.e. how do we pay for it)?
 - When do we move forward?
- Myriad of issues with EMV deployment in the U.S.
- We want to help you evaluate this for your credit union

What is EMV and how does it work?

What is EMV?

- The terms EMV and chip used interchangeably
 - EMV is the global specification which supports smart card/terminal/processing interoperability
 - It is an open, industry-wide specification, developed in 1994 by Europay, MasterCard, and Visa
 - Maintained by EMVCo LLC, formed in April 1999
 - EMVCo LLC is owned by Amex, JCB, MasterCard and Visa
- EMV provides strong security features not possible with traditional magnetic stripe cards

What is a chip card?

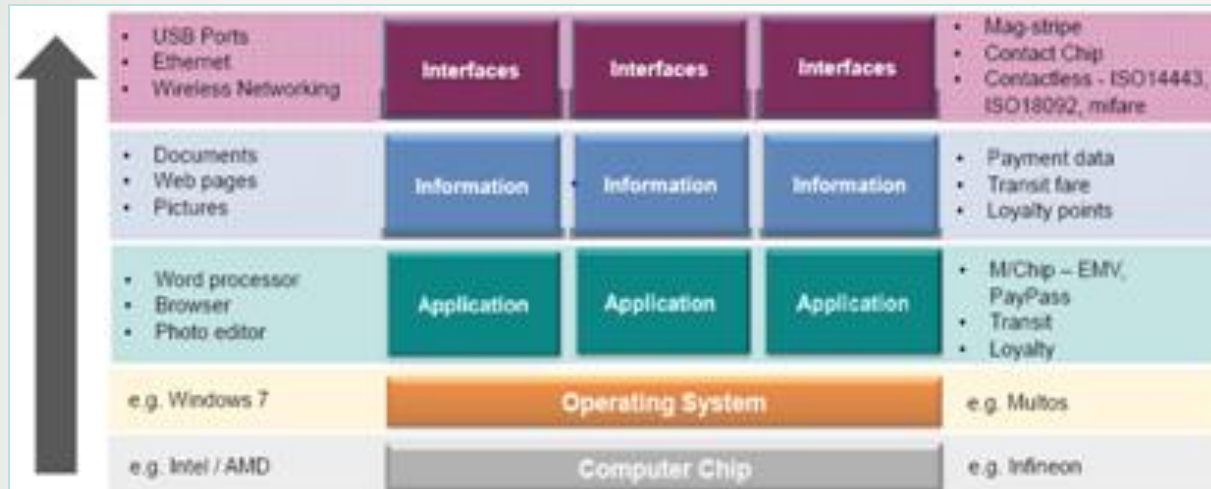
- A chip card has a magnetic stripe and a small microprocessor embedded into it
- The chip contains an operating system and one or more applications
- This microprocessor and contact plate are mounted on the front of the card



- The microchip is encrypted, which means that it is extremely difficult to copy or counterfeit

How does it work?

- Chip cards are miniature computers with an operating system and multiple interfaces and applications



- In an EMV scenario, a cardholder inserts an EMV card into the reader
- The card and terminal enter into a dialog
- Issuer “preferences” for authorization and authentication on the chip takes precedence over the terminal “preferences”

Cardholder Verification Methods

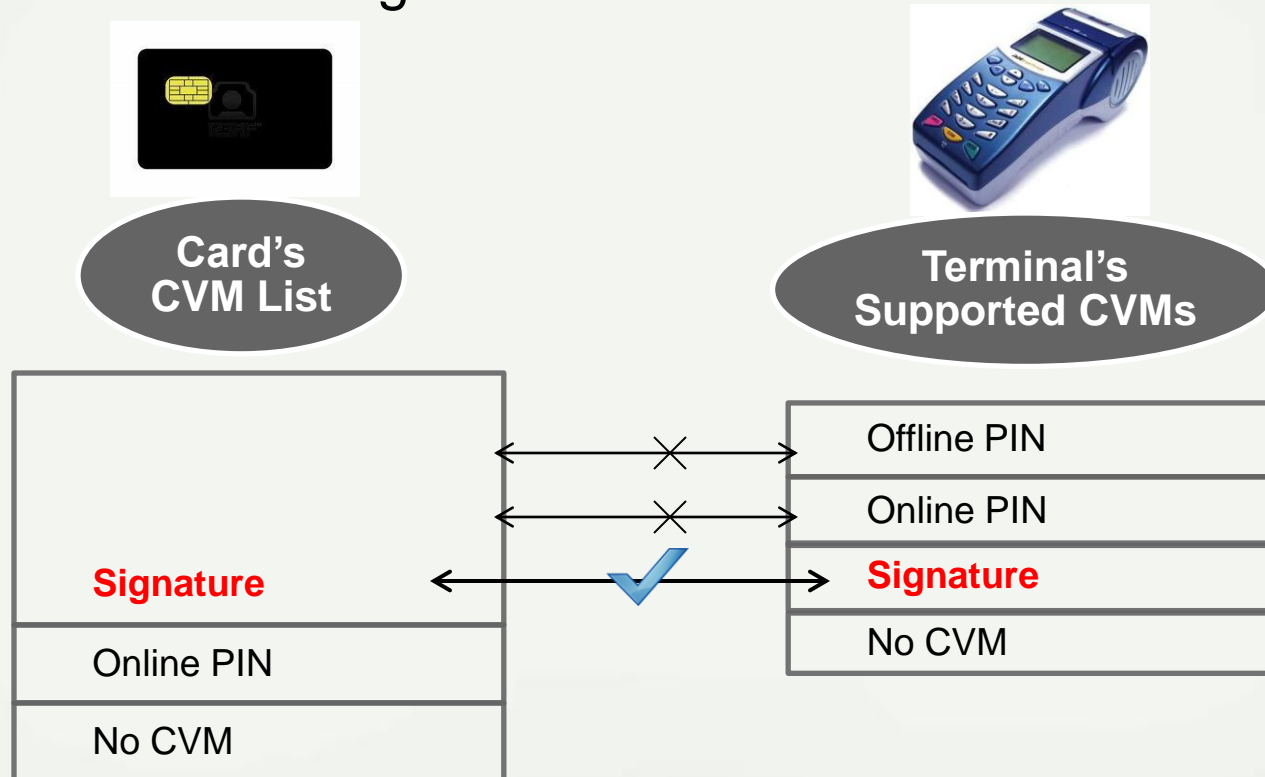
The term “Chip and PIN” may be misleading. EMV supports four cardholder verification methods (CVMs)

1. Online PIN, where the PIN is encrypted and verified online by the issuer (host)
2. Offline PIN, where the PIN is verified offline by the chip on the card
3. Signature verification, where the cardholder signature is compared to the signature on the card
4. No CVM (typically for low value transactions)

ATMS are typically required to always support Online PIN

Cardholder Verification Methods

Issuer preference determines the CVM used, but the terminal must have a matching CVM choice



Online versus Offline

Offline means the terminal communicates with the chip embedded in the card versus the host

Online PIN, online authorization

- The terminal transmits the encrypted PIN (if applicable) and payment information to the host for authorization similar to the magnetic stripe process today.

Offline PIN, online authorization

- PIN is validated offline, and the result is sent in the message with the payment data for online authorization

Offline PIN, offline authorization

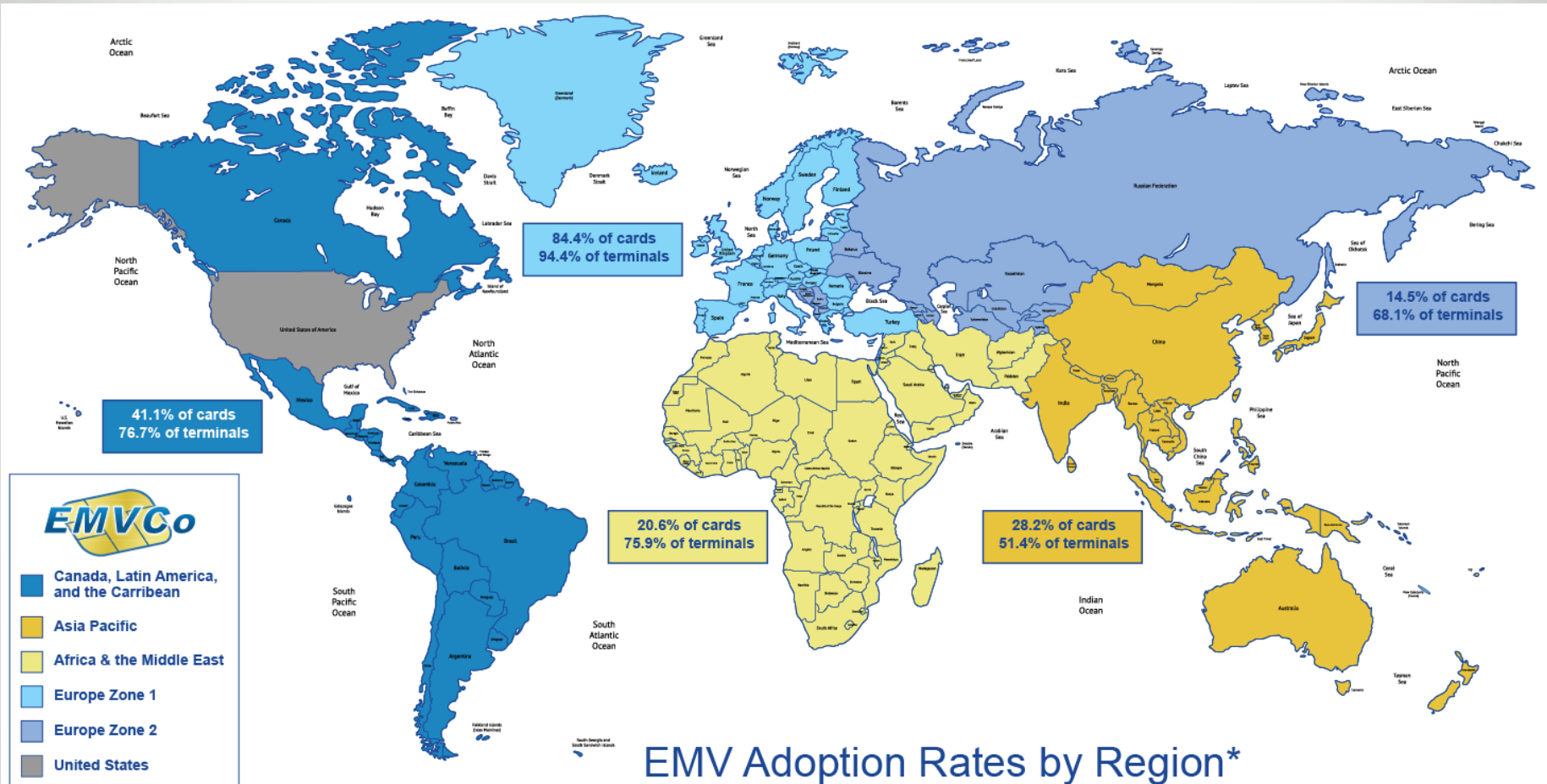
- PIN and transaction are verified and authorized offline
- Card is synced with host the next time it goes online
- Typically only unattended terminals

U.S. and Global Adoption

Global Adoption

- EMV initially adopted to combat fraud in areas where offline authorization was the norm
- France, the first country to deploy EMV, experienced 80% decline in counterfeit fraud activity
- 1.5 Billion cards issued globally by Q4 2011
- 18.7 million POS devices
- Online authorization becoming more prevalent
- Offline authorization is still used in some unattended terminals

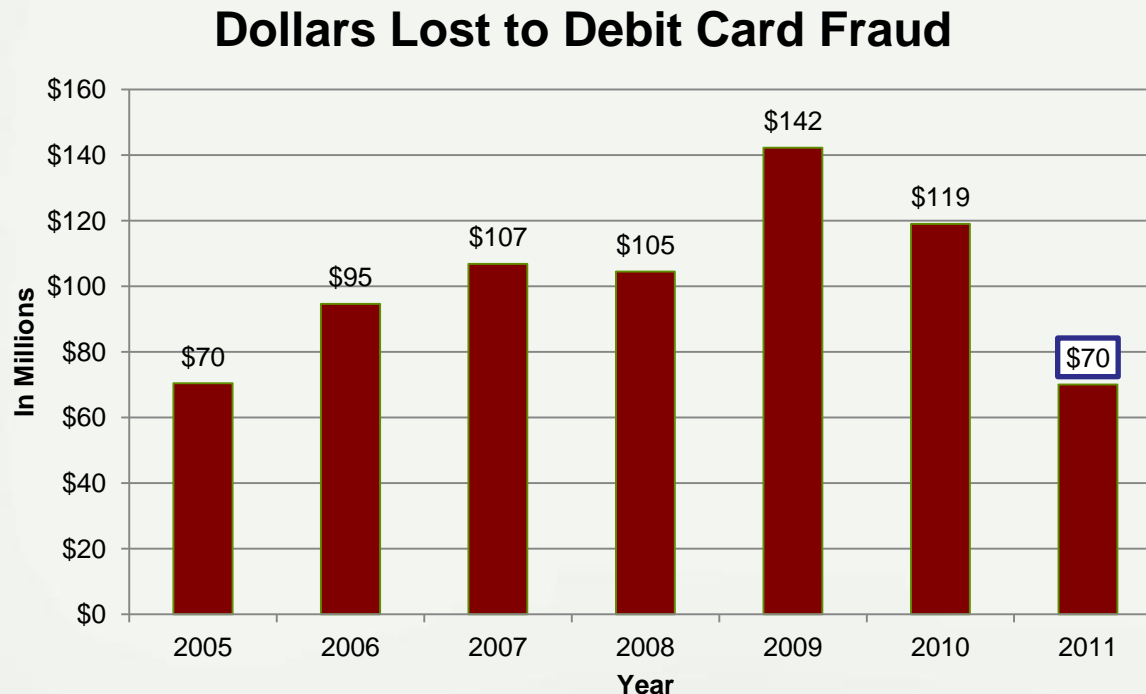
Global Adoption by Region



*Figures reported as of Q4 2011 and represent the latest statistics from American Express, JCB, MasterCard, and Visa, as reported by their member financial institutions globally. Figures do not include data from the United States.

Canadian Fraud Statistics (EMV deployment began in 2009)

*Interac Association announced that Interac debit card fraud losses to financial institutions resulting from skimming declined again in 2011 "Our collective efforts and significant investments in the fight against debit card fraud, **particularly the transition to chip technology**, are producing tangible benefits," said Caroline Hubberstey, Head of External Affairs, Interac Association. Toronto 3/16/2012*



CO-OP estimates that approximately 50% of fraud is due to counterfeit cards created from skimming.

Interac is the PIN debit network in Canada

U.S. Response

- U.S. is behind the rest of the world in deploying EMV
- Actions by U.S. Networks (V/MC/Amex/Discover) driving adoption
- EMV efforts consuming existing payment eco-system for the next two to three years
 - Impact is to entire payments infrastructure
 - Acquirers frantically trying to meet 2013 merchant acquirer dates
 - EMV specifications do not support Durbin merchant routing control causing uncertainty for debit networks and deployment strategies
- There are no mandates for issuers and acquirers, only liability shifts starting in 2015

Visa EMV Timelines

- October 1, 2012: Merchants will be exempt from PCI reporting if they process 75% of their VISA transactions on EMV enabled terminals
- April 13, 2013: Merchant Acquirer processors must certify support for and accept Visa EMV chip contact and contactless transactions
- October 1, 2015: Liability Shift for counterfeit POS fraud will be assessed to the party that did not enable the chip-to-chip (EMV) transaction
- October 1, 2017: Same as above but for automated fuel dispensers

MasterCard, American Express and Discover soon followed Visa with the same timelines, eliminating some uncertainty in the market

Additional MasterCard Announcements

MasterCard has announced the following liability shifts

- April 19, 2013: Liability shift for inter-regional (cross border) ATM Maestro transactions at U.S. ATMs
 - ATM Acquirers will assume counterfeit fraud-related liability if a non-U.S issued EMV card is used at a non EMV enabled ATM.

Does not apply to US issued cards accepted at US ATMs

Recently announced:

- October 2016: Liability shift will apply to all MasterCard-branded products across all transactions initiated at U.S. ATMs

Visa has made no announcements on ATMs

U.S. Adoption

- Limited adoption to date
 - Few issuers, primarily to international travelers
 - Few to no ATMs ready
 - POS terminals deployed, but software to enable an EMV payment rare
- First credit union to deploy EMV cards:
 - United Nations Federal Credit Union (UNFCU)
 - Rollout went to 8,000 credit card accounts in a frequent flyer card program
 - Now roughly 40,000 EMV credit cards
- Industry experts expect conversion to EMV to take 10 + years

Impact to Ecosystem

EMV Payment Applications

- An EMV payment application is the software that determines the actions of the card and transaction
- EMV payment applications are network specific
 - Today only the four national networks have applications
 - Visa (VSDC), MasterCard (M/Chip), Discover (D-PAS) and American Express (AEIPS) each have their own application
- The terminal and card must have the same application loaded
 - For example, a Visa EMV card used at a terminal loaded only with the MasterCard application will terminate or revert to mag stripe

Hardware and Software

- Cards and terminals must have new hardware and new software
- Many newer terminals have the hardware but not the software
- The terminal can be loaded with multiple applications
- The card (chip) can also be loaded with multiple applications
- Processors and other providers must code for hardware and software

Payment Infrastructure Impacts

- All stakeholders in the payment chain are impacted
- Development needed by:
 - Terminal manufacturers (both POS and ATM)
 - Merchants
 - Merchant Acquirers
 - EFT Processors
 - Core Data Processors
 - Card Manufacturers
 - Card Personalization Bureaus
- Must code to every payment application to mimic today's interoperability
- Numerous opportunities for failure of cross-industry alignment



Be There Be More

Deployment in the U.S.

U.S. market is different than other parts of the globe:

- Competitive
 - Multiple PIN debit networks in addition to four national networks
- Online all the time
 - Significant fraud reduction will be years away
- New federal legislation
 - Durbin impact
- Other areas of the world:
 - One national PIN debit network
 - Offline/batch processing
 - Interoperability driven through regulation

Durbin Impact and Lack of Portability

- EMV deployment in the U.S. supports either one application on the card
 - Routing is to that specific network based on the application on the chip
 - Currently no support for direct routing to other networks, such as CO-OP, NYCE, or others
- Durbin compliance for merchant routing control and two unaffiliated networks is not supported
- Portability between networks without reissuance is not supported

Finding a Solution

- CO-OP participation in industry working groups
- Regulators showing interest in insuring compliance
- One potential solution is for PIN debit networks to arrive at a common solution or application
 - Could have multiple AID's to identify each network
 - Protects routing to the PIN debit networks
 - Issuers have portability without reissuing
 - Merchants, terminal manufacturers, card producers would have less development
- Other solutions also being evaluated. Announcements expected soon.

Recommendations

Early Adoption

- There is no mandate for issuers or acquirers
 - Liability shift for acquirers in 2013 for Maestro international transactions only (2016 for U.S. transactions)
 - Liability shift for issuers in 2015 shifts fraud liability to the party that did not enable the EMV transaction
- Uncertain when we will reach critical mass of merchant terminals
 - EMV enabled terminals virtually non-existent in U.S. today
- High premium for early adopters of new technologies
 - Higher cost
 - Higher risk of deployment issues

Be Clear About Reasons to Move Forward

The critical question for credit unions is “what is my reason to implement **now**?”

- The answer to this question should lead to detailed analysis
 - Evaluate benefits using data of existing portfolio
 - Include all costs
 - Consider all hidden factors, such as:
 - Marketing strategy
 - Cardholder acquisition
 - Cardholder retention
 - Staff training
 - Member education

Fraud Reduction

- EMV will definitely reduce fraud losses—eventually
- Before moving forward today for this reason
 - Analyze your fraud today
 - EMV will reduce fraud from counterfeit cards
 - Evaluate fraud impact in the near term
 - EMV does not impact card-not-present fraud or lost/stolen fraud
- Equation will change once terminals are deployed in U.S.

Global Interoperability

- Industry estimates there are 5% of chip only terminals worldwide
- International travelers are experiencing some issues with magnetic stripe cards
- Determine the need
- Consider an EMV travel card
- Until your credit union has an EMV card, advise travelers:
 - Worldwide acceptance rules
 - Unmanned terminal strategies

Building the Business Case

- Accurately assessing costs is critical to determine timing
- Migration costs remain high
- Card cost has come down, but certification costs high
- Estimates of migration today
 - \$25,000 – \$60,000 and up
 - Card manufacturer and card personalization bureau
 - Network (Visa/MC)
 - Processor (EFT and Core)
 - Marketing and implementation costs
- Consider all variables

Financial Impact of Uncertainty

- Routing issue resolution may be another application, potentially a “PIN debit” application
- Solves for routing and portability among networks
- Must be added at the time of the card issuance and terminal deployment
- Issuing now could require reissuance of all EMV cards
- We advise you not to rush to issue of EMV cards until this issue is resolved
- Upgrading ATMs now would require additional software upgrades later

CO-OP Support and Roadmap

- CO-OP technical support:
 - Beta testing EMV with a Visa issuer, live in November
 - Beta testing EMV with a MasterCard issuer early 2013
 - Beta testing EMV at the ATM with the MasterCard application, live in January 2013
- Technical Roadmap
 - Online support including DE 55 (new data element specific to EMV): 2013
 - Offline support: 2014
- Leadership
 - Active participation in EMV industry groups, such as the SRPc
 - EMV Resource Center: www.co-opfs.org/EMV

Summary

- EMV is a complex technology
- Complex deployment in the U.S. still to be resolved
- Most credit unions taking a wait and see approach, which CO-OP recommends as well
- Become and stay informed
- Visit the CO-OP EMV Resource Center for up to date information
 - White Papers
 - Blogs
 - Ask the Expert
 - Webinars
 - Links to other resources

Questions?

More resources are available at the
CO-OP EMV Resource Center:

www.co-opfs.org/EMV