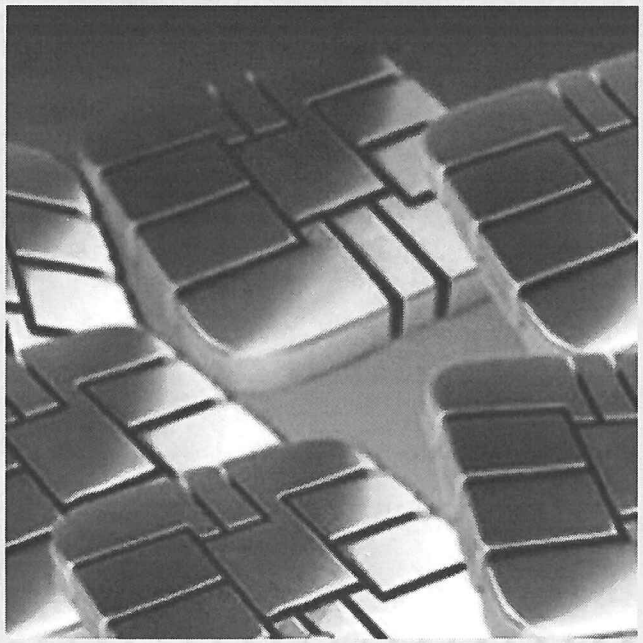

January 20, 2016
House Committee on Financial Services
David Q. Worthams, Policy Director

EMV (AKA CHIP AND PIN) CARDS AREN'T THEY THE BEST! (OR ARE THEY?)

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Michigan Bankers Association

A QUICK HISTORY OF CREDIT CARDS

- 1951 – Franklin National Bank (in New York) introduces bank credit card
- 1958 – Bank of American begins *BankAmericard*
  - Establishes fees to pay for the service
    - Annual Fee – paid by card users
    - Interest Rates – paid by card users
    - Per Transaction Fees – paid by merchants
- 1966 – BankAmericard & the InterBank Card Association (which will eventually become Mastercard) allow other banks to use cards as *franchisees.*
- 1970 - BankAmericard becomes a multiparty corporation that eventually becomes VISA
  - Sets first interchange fee at 1.95% per transaction
  - Fee eventually set at $.42 per transaction
- 1988 – The first nationwide PIN-debit provider is launched
- 2015 – Financial Institutions are required to offer cards equipped with chip-based technology.

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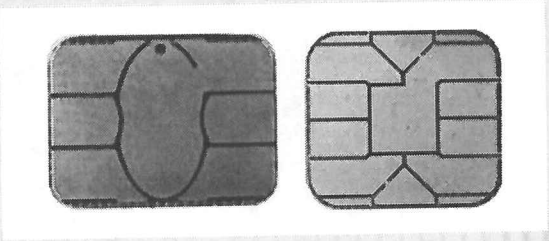
EMV CHIP TECHNOLOGY – WHAT IS IT?



- Debit/Credit cards with EMV (Europay, MasterCard,Visa) include a microprocessor "chip" that protects personal information
  - Generates a unique, random set of numbers to complete each transactions
  - These cards are more secure than magnetic stripe cards.
  - Consumers continue to have zero liability for fraudulent transactions

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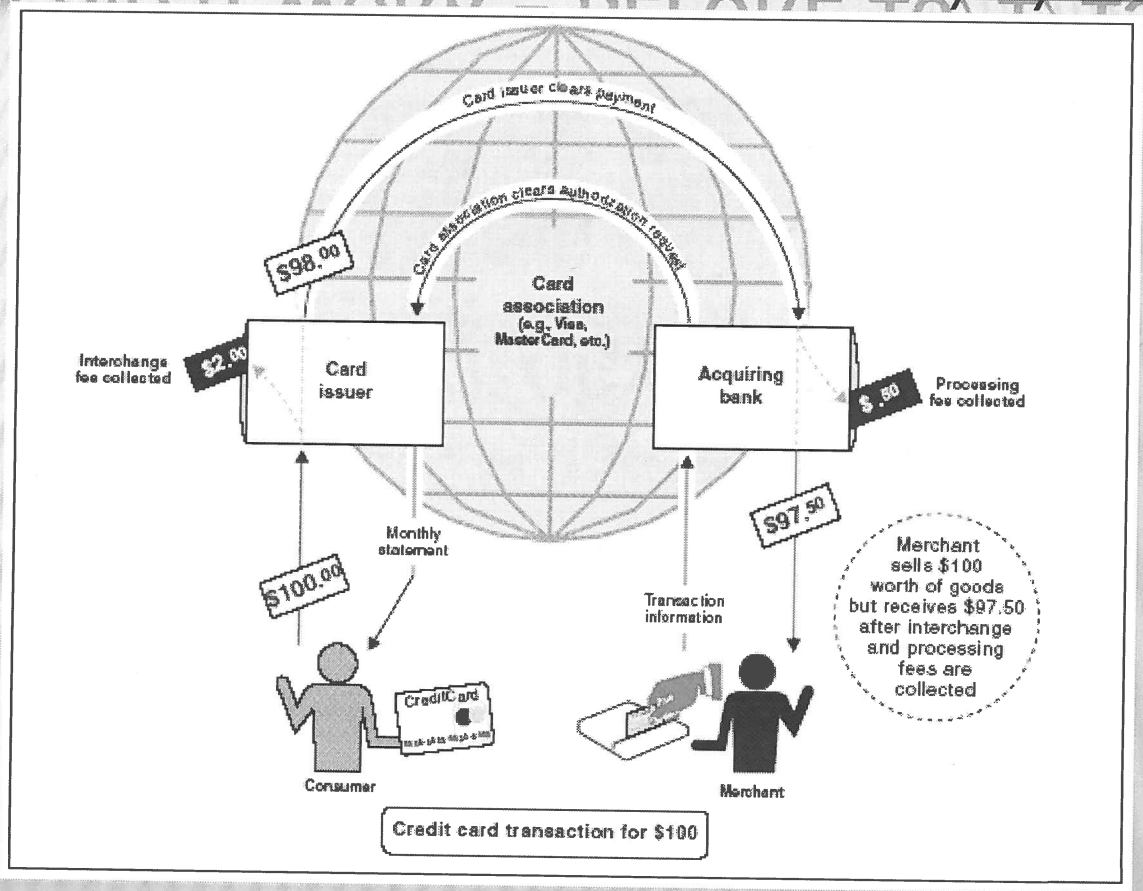
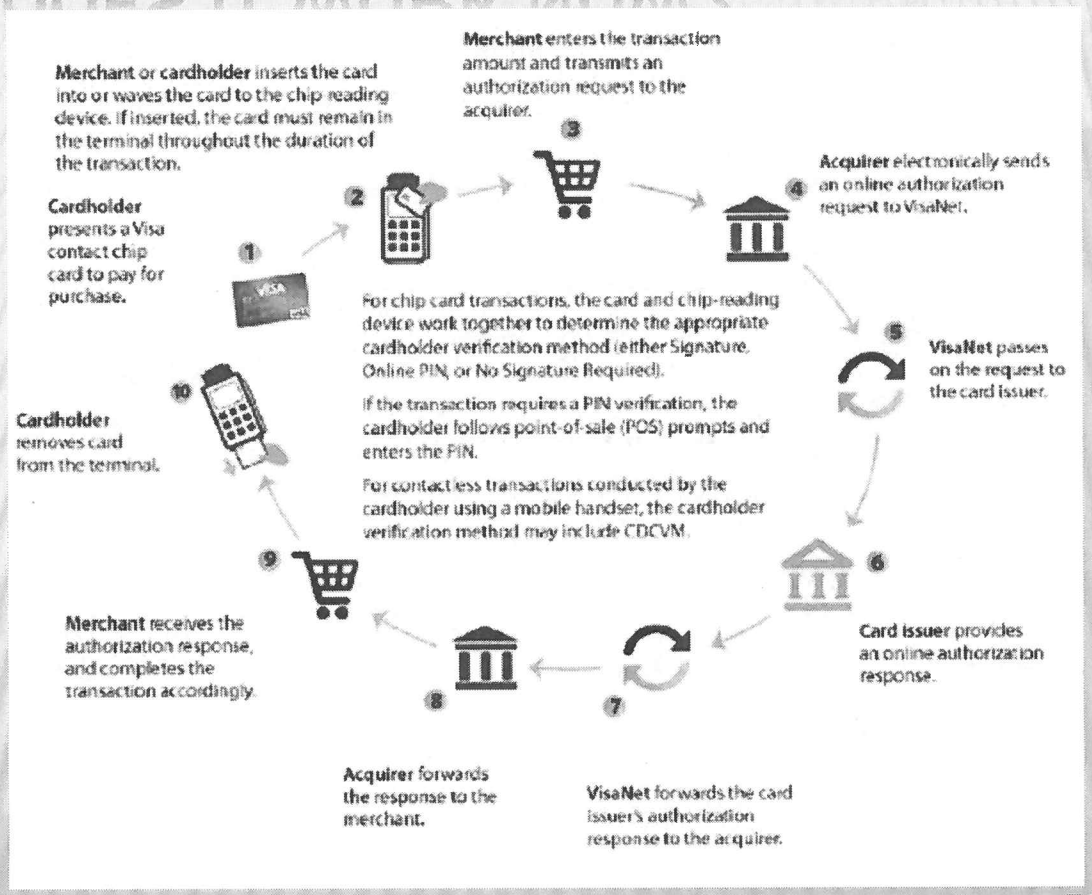
HOW DID IT WORK – BEFORE 10/1/15



HOW DOES IT WORK NOW?



THE U.S. ROLLOUT OF EMV

- 2012
  - Visa, MasterCard, American Express, Discover all announce EMV migration plans
- 2013
  - Processors required to be ready for and provide support to merchant use of EMV Chip transactions.
  - MasterCard also requires EMV compliance at all U.S. ATM's.
- 2015
  - On October 1st - Liability shifts to the party that is the cause of an EMV chip transaction not occurring. Does not include automated fuel dispensers (i.e. gas pumps)
  - Visa also requires ATM's to support EMV Chip transaction data
- 2016
  - MasterCard shifts liability for all U.S. ATM's
- 2017
  - Automated fuel dispensers must comply with EMV requirements
  - Visa shifts liability for all U.S. ATM's

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BANKS ARE READY FOR EMV

- 575 Million chip cards were in use in the U.S. by the end of 2015
  - This is the most of any other country in the world
- 3 out of every 5 people have EMV in their wallet
- 80% of shoppers believe that retailers should be held to the same security standards as banks.
  - Moving to EMV helps market move in that direction.

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LIABILITY SHIFTS – IN GENERAL

Card Type	Point of Sale (POS) Capability	Who's Liable
Magnetic stripe only	Terminal not enable for contact	Card issuer (i.e. financial institution)
Magnetic stripe only	Chip reader ready & enabled	Card issuer
Chip	Chip reader ready & enabled	Card issuer
Counterfeit magnetic strip with track data copied from a chip card	No chip reader (or chip reader not enabled)	Merchant
Counterfeit magnetic strip with track data copied from a chip card	Chip reader ready & enabled	Card issuer

IN SHORT – WHICHEVER PARTY HAS THE LESSER TECHNOLOGY WILL BEAR THE LIABILITY

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WHY THE MOVE TO EMV

- 25% of the world's payment card transactions are generated in the U.S.
  - More than 50% of card fraud in the world occurs here too
- $10 billion in card fraud losses in 2015
  - The rate has doubled in recent years
- Europe experience a 27% decrease in card fraud since EMV rolled out in 2007

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SO CHIP AND PIN MAKES EVERYTHING ALL RIGHT, UPTIGHT AND OUT OF SIGHT?

WE'RE NOT THERE YET

- EMV is more secure
  - Additional layer of security
  - Virtually impossible to duplicate a card with a chip
  - Increased encryption is effective in combating credit card fraud
  - Should prevent personal data from being stolen

- BUT
  - Chip only works at a business that has a chip-enabled terminal
  - No single technology will prevent fraud
  - EMV is just a part of the greater effort being made by banks and credit networks to combat thieves and hackers
  - Hackers have already discovered ways to break EMV's algorithms
  - EMV chip and pin cards do nothing to prevent Target and Home Depot type of breaches

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THE PRE PLAY ATTACK

- Researchers at Cambridge have discovered that the code for each transaction is not truly unique.
  - *"Some EMV implementers have merely used counters, timestamps, or home-grown algorithms. This exposes them to a 'pre-pay' attack which is indistinguishable from card cloning from the standpoint of the logs available to the card-issuing bank, and can be carried out even if it is impossible to clone a card physically"*

  Mike Bond "Chip and Skim: Cloning EMV cards with the pre-play attack", Sep. 12, 2012

- An EMV based on a weak random number generator (RNG) can lead to similar fraud seen in the Target/Home Depot data breaches.

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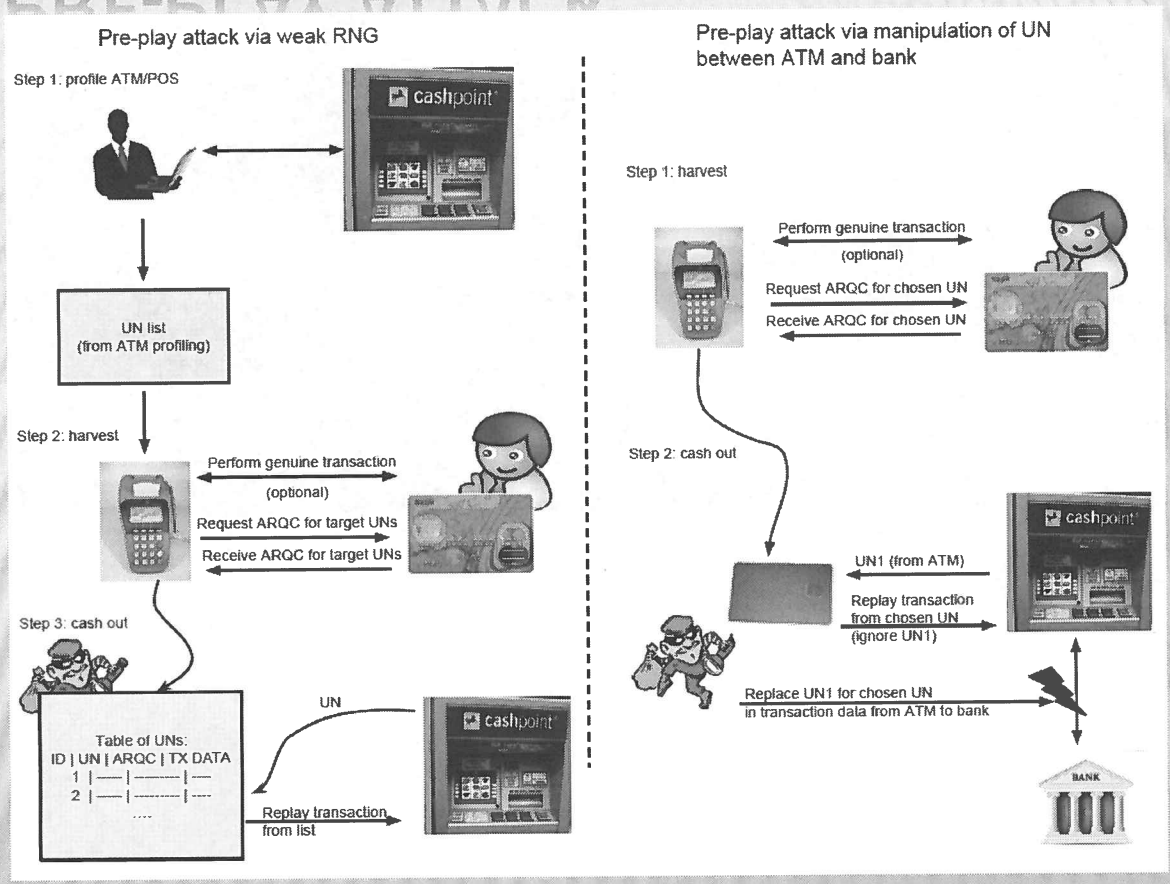
THE PRE-PLAY ATTACK



IS A PIN MANDATE THE SOLUTION?

NO, IT ISN'T

- Consumer protection will not increase with PIN mandates
  - Static PINs are incapable of thwarting sophisticated hackers
  - PINs do not encrypt any data
  - There continues to be "zero liability" in the card issuers contracts.
  - Banks and Credit union are covering the cost of making consumers whole when impacted by a data breach
  - Even the Consumers Financial Protections Bureau (CFPB) opposes a PIN mandate
  - 50% of U.S. transactions are "no verification needed" transactions because the cost of the sale is too low to require PIN or signature.
- Most frauds/data breaches come at the retailer level.
  - PINs have been stolen and used to clean out accounts before a breach is even discovered by a retailer.

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TOKENIZATION – THE NEXT STEP

- An important feature that mobile wallets use
  - Apple Pay
  - Google Wallet
- Works by replacing sensitive consumer account information (both at cash register and online) with a random string of letters, characters, and numbers.
- Only used for one transaction and then is rendered useless

SMART SECURITY IN AN EVER CHANGING WORLD

POLICY OPTIONS

- Protect The Entire Payment system
  - With non-banking institutions offering ways to pay, it is imperative that they are subjected to the same requirements as banks.
  - Thieves move to the most vulnerable spot in the payment system
- Support Collaborative Efforts to Stop Cyber Crimes
  - **Michigan State Police Michigan Cyber Crime Division**
- Create Environment for Advances in Cyber Security

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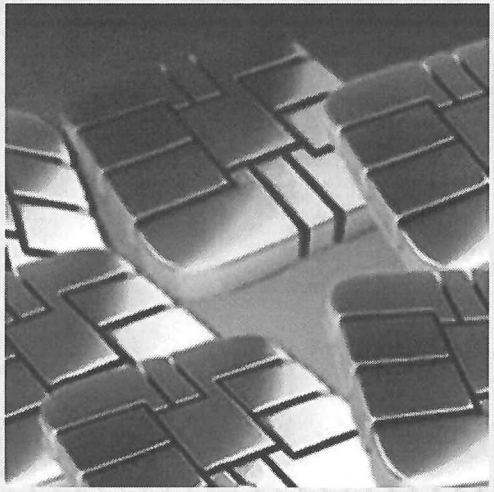
INNOVATE DON'T MANDATE



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