

The Canadian Migration to EMV

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pa
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Everyone But The USA Is Migrating

**The international schemes decided
*Smart Cards are the way forward***

**Europay, MasterCard[®] & Visa[®] International
Produced a joint *Integrated Circuit Card
Specification for Payment Systems***

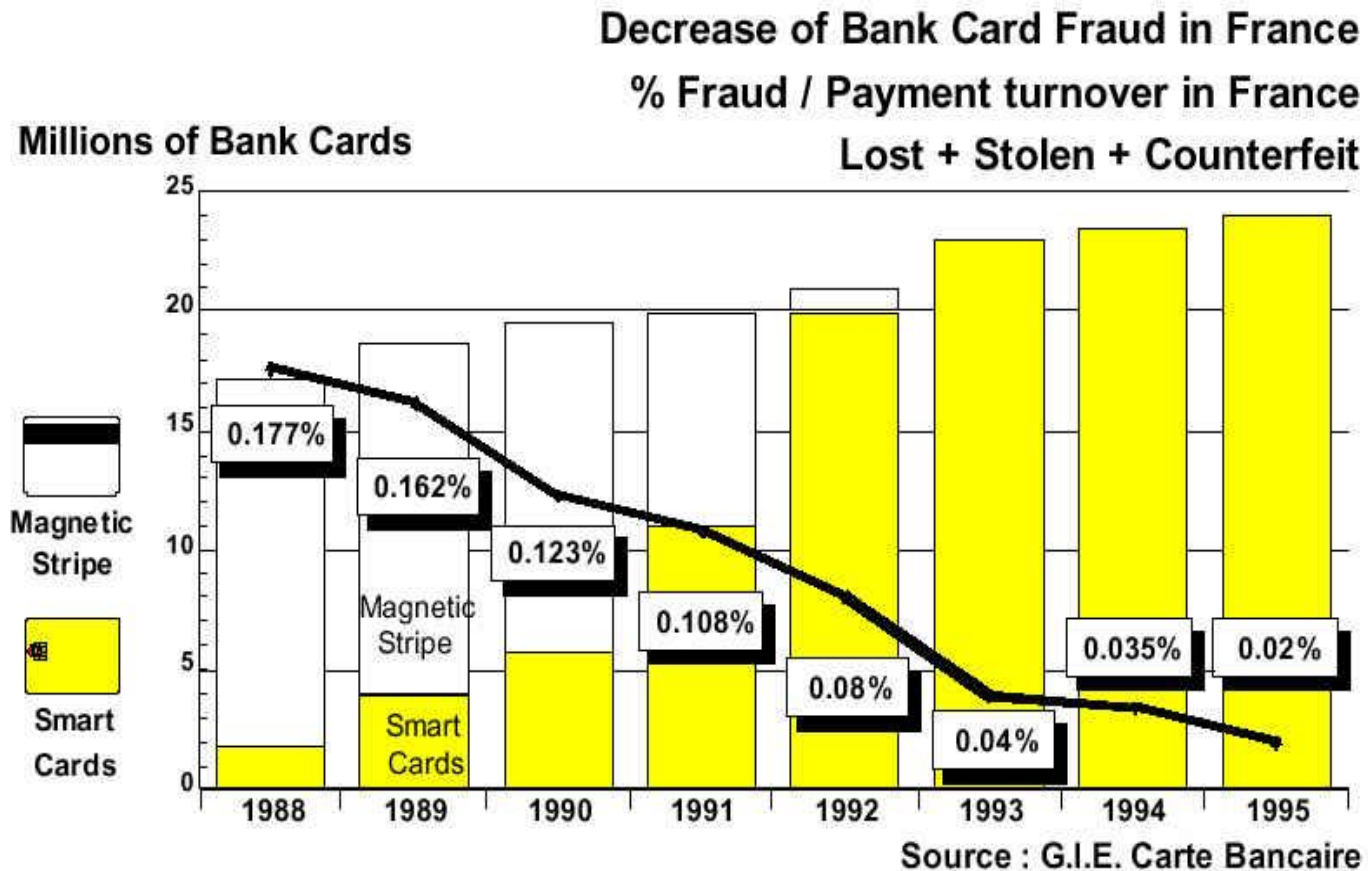
Fraud Control
Pin On Credit

Cost Reduction
Off-line Authentication



Logic in Chip
Credit Risk Management

Revenue Creation
Value Added Services



In the early 90's France reduced fraud by 90%
by moving from magnetic stripe to chip cards based on B0'

pa Magnetic Stripe

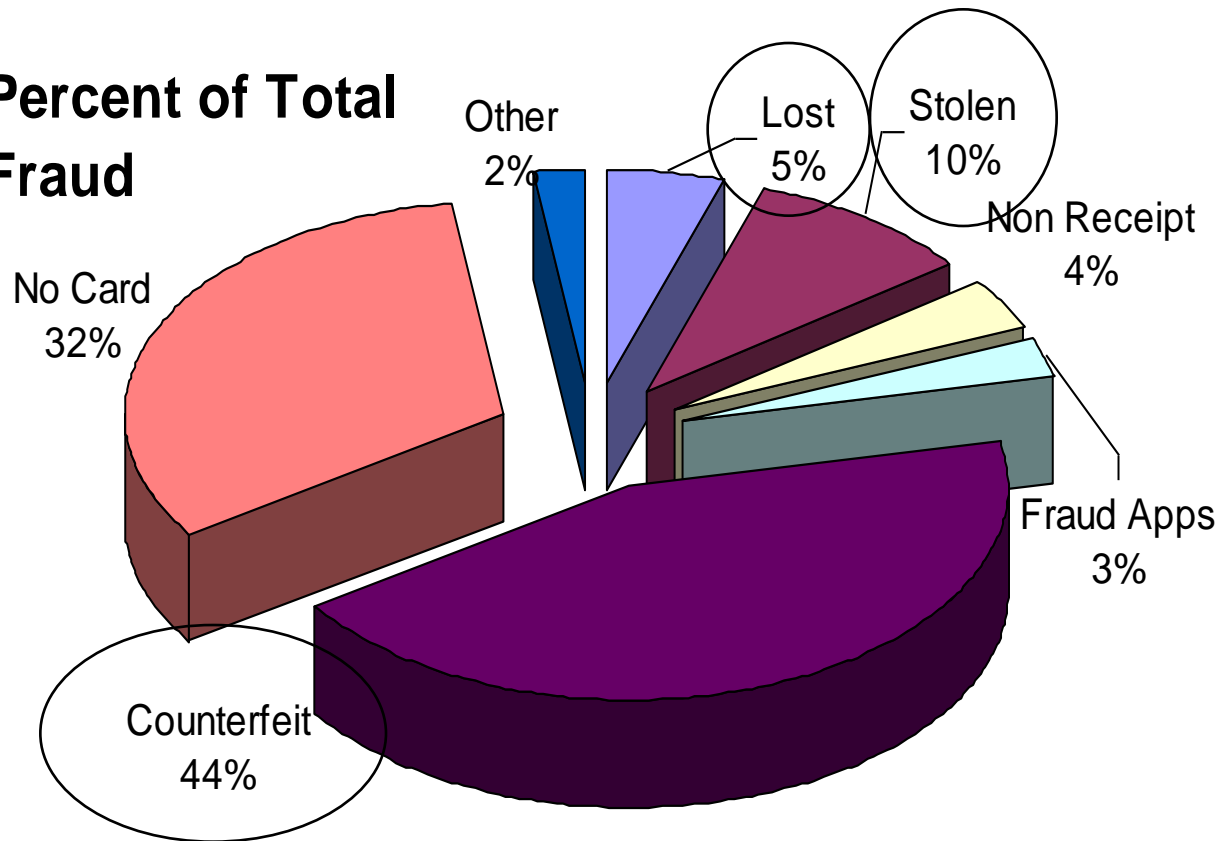
- Billions of cards are in circulation and 100s of million of readers are deployed across a range of applications
- Pros:
 - Inexpensive – \$0.10 to \$0.50
 - Readers are inexpensive
 - Employed Globally
 - Fit for the current requirements
- Cons
 - Easy to copy and counterfeit
 - Limited storage capabilities
 - Ever increasing numbers of cards in our wallets



Canadian Fraud is Growing

2004 results

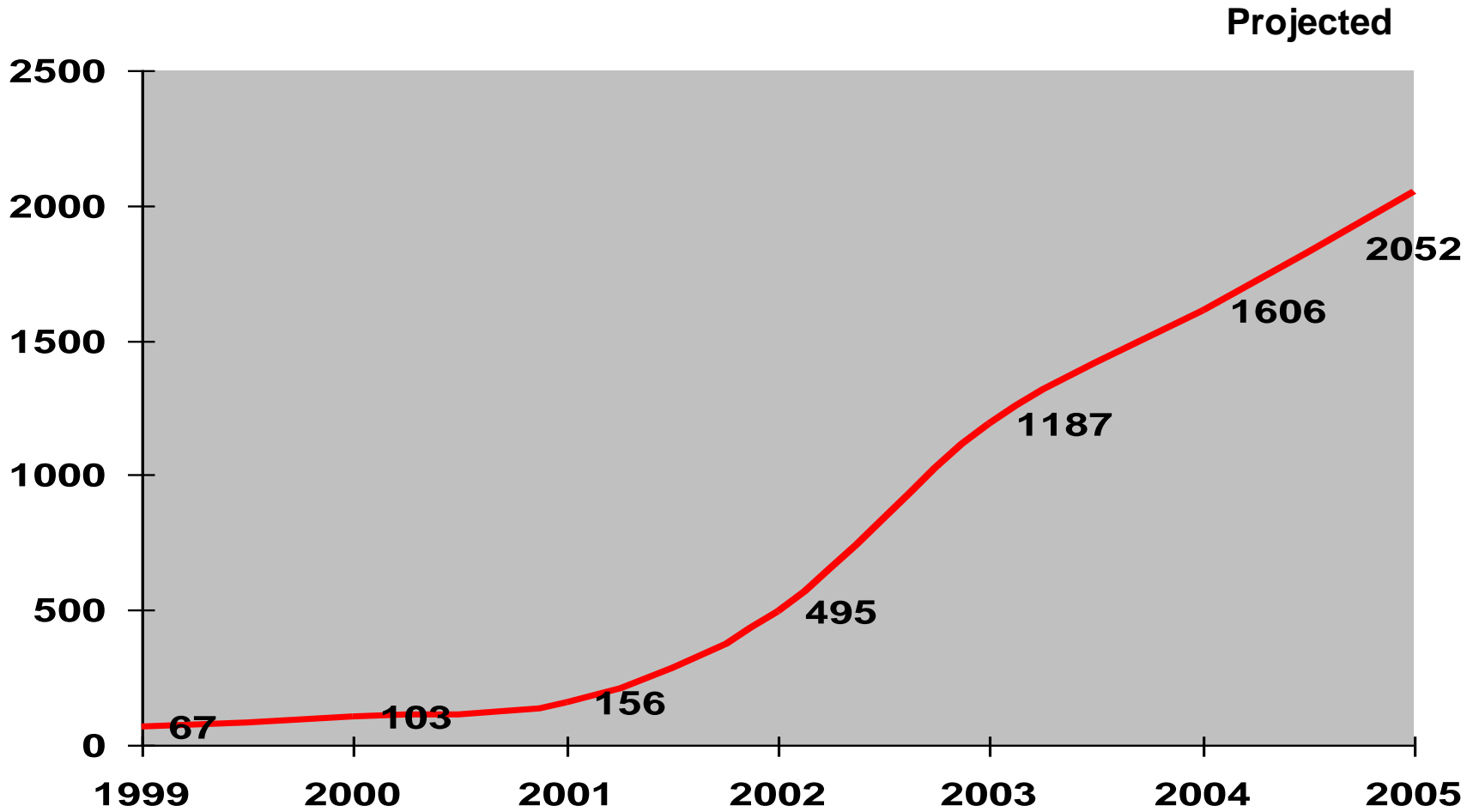
Percent of Total Fraud



Source: CBA, Payment Card Partners (Visa, MasterCard, AMEX)

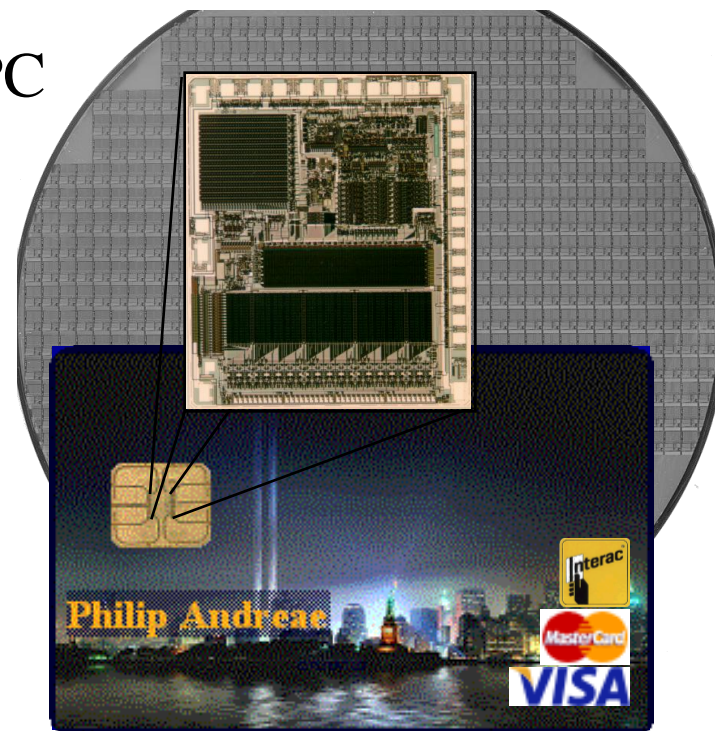


Interac[®] Confirmed Debit Skimming Occurrences



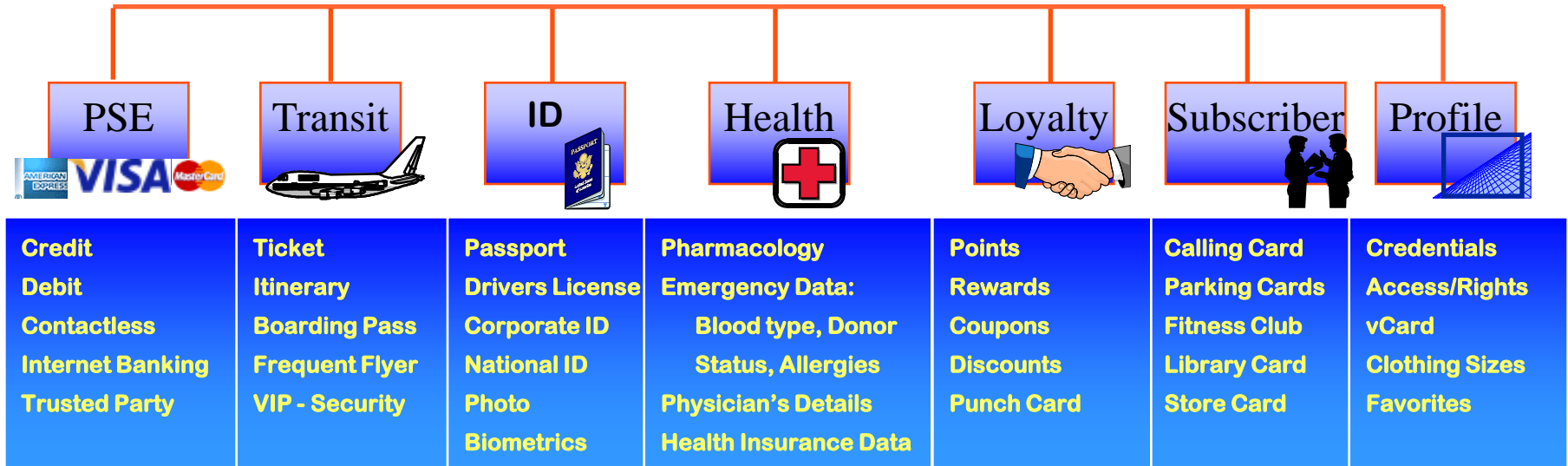
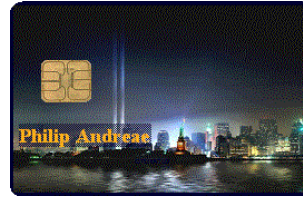
What is a Chip Card?

- A plastic credit card with an embedded computer chip containing a microcomputer
 - 1976 a calculator in your card
 - Today the power of 1981 IBM PC
 - Tomorrow integrated with your body, PDA and Cell Phone?



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The Consumer Will Understand They Could Consolidation Onto One Card



Key uses: Authentication, Data Storage, eValue, Identification, and Security

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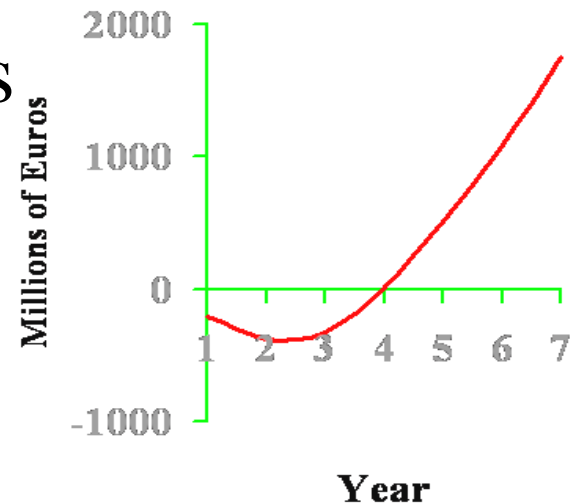


The Smart Card Business Cases

Are Based On

- A **CAM** to stop counterfeit losses
Card Authentication Method
- A **CVM** to reduce lost & stolen
Cardholder Verification Method
- **Off-line algorithms** to reduce processing cost
Card Risk Management
- An infrastructure for **Value Added Services**
multi-application

In 1994 Europay Projected a
Cumulative Benefit





Four Conditions to Assure Success

- PIN Verified in Chip
- No Fallback to Magnetic Stripe
- Transaction liability belongs to the one who DOES NOT introduce chip (card or POS)
- Chip Incentive paid to the Acquirer

Industry agreed EMV market Launch

- Technical shake out
- Test Market Communications
- Test merchant training
- Evaluate Consumer response

Date of consumer launch is fluid



Monday, 13 March 2006
Industry Announces Alignment

*“Members of the payment card industry --
Interac Association,
MasterCard Canada Inc.,
Visa Canada Association,
and many of their respective
card issuers and acquirers
-- today announced a firm
commitment to a broad industry
migration to chip technology.”*



Thursday, 20 October, 2005

Interac[®] Commits

“Interac ... announced approval by its Board of Directors of ... deadlines for the conversion of ... Shared Cash Dispensing and Interac Direct Payment - to chip technology.”

- December 31, 2010 – 50% reduction in Debit Card fraud with card and terminal targets
- December 31, 2012 – **No Magnetic Stripe transaction at SCD Automated Bank Machines**
- December 31, 2015 – **No Magnetic Stripe transaction at IDP Point of Sale devices**
- Specific timelines for the introduction of chip will vary from Member to Member

*“Millions Of Canadians To Get
A Computer On Their Visa Card”*

- Program Began (Carrot) October 2004
- Mass Card Issuance 2008-2010
- Liability Shift (Stick) October 2010



Benefits of EMV to Payment Industry

- Global interoperability
- Irrefutable Transactions
- Speed through checkout
- Support for off-line PIN on credit cards
- Assure confidence in the payment system
- Reduced Fraud therefore less charge-backs
- Secure and cost effective off-line transactions
- Efficiencies in processing low value transactions

New revenue opportunities

There are Significant Efficiencies

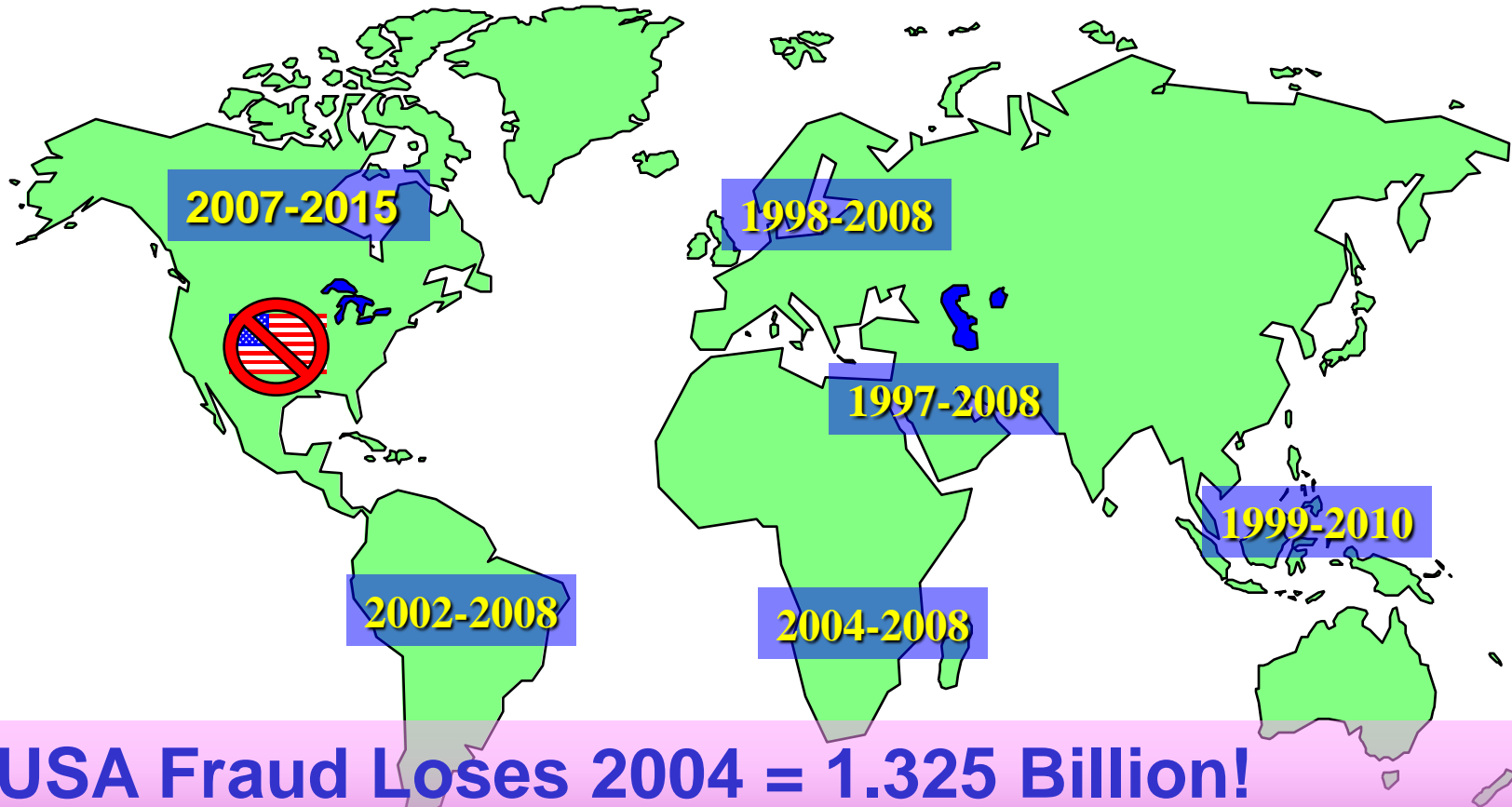


Benefits of EMV to Merchants

- Guarantees card payment to Merchants
- Enhance efficiencies:
 - Reduced fraud
 - Reduce retrieval & charge-backs
 - Removes the need for paper receipts
 - Speed and ease of use at the point of sale
 - Tesco Claimed 1 Million Pounds Per Second
 - Chip and Pin was worth 6-8 seconds
 - Improve disputes procedure and resolution
- Enhances the e-Commerce environment
- Platform for more robust loyalty programs
- Opportunity to employ electronic payments at unattended locations and high risk outlets



EMV – Deploying Globally



USA Fraud Losses 2004 = 1.325 Billion!

Cost to deploy EMV = +12 Billion ➤ No Payback



Migrating to EMV takes time

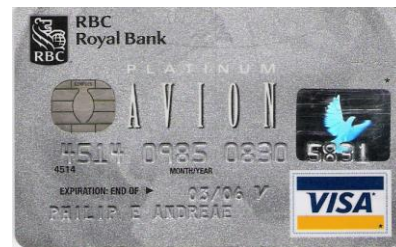
Magnetic stripe is here to stay

| Card Holder Verification Method to use | Hybrid POS | Magnetic Stripe POS |
|--|------------|---------------------|
| Chip w/ Mag. Stripe Card | PIN | Signature |
| Magnetic Stripe Only Card | Signature | Signature (today) |

Sales personnel will employ new acceptance procedures

Customer Service personnel will need to understand Chip

Store owners and support staff will see change in process and a reduction in exception items



USA will focus on magnetic stripe & contactless smart cards

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EMV Application Selection

All payment products on one card



1. - Amex
2. - Interac
3. - MasterCard
4. - Visa

Enter 1,2,3 or 4



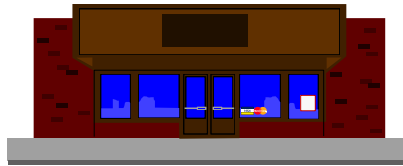
**Consumer
Selection**



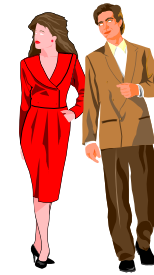
EMV Offers Transaction Irrefutability

- Once Payment Application is selected
- The terminal authenticates the card
- The PIN is verified by the card
- The Terminal performs terminal risk management
- POS then asked the Card to either:
 - Approve off-line TC
 - Confirm the decline of the transaction AAC
 - Confirm the Request for a Referral AAR
 - Request a Cryptogram for on-line approval ARQC
- The Card can upgrade the terminals decision and decide to decline the transaction or request an on-line approval

EMV Enhances the Authorization Process with Cryptography & Scripts



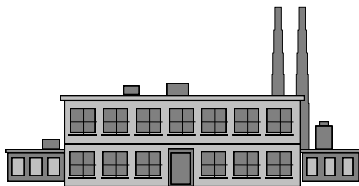
Merchant



Cardholder

Add Bit 55 for EMV Data to ISO 8583 messages

New values for bits 22 and 23

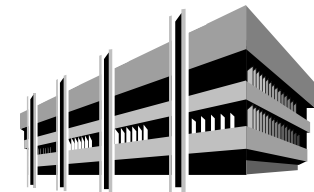


Acquirer

**Batch Presentment/Clearing
Including Transaction Certificate**

**Authorization/Finance Response
Including ARPC & Script**

**Authorization/Finance Request
Including ARQC**



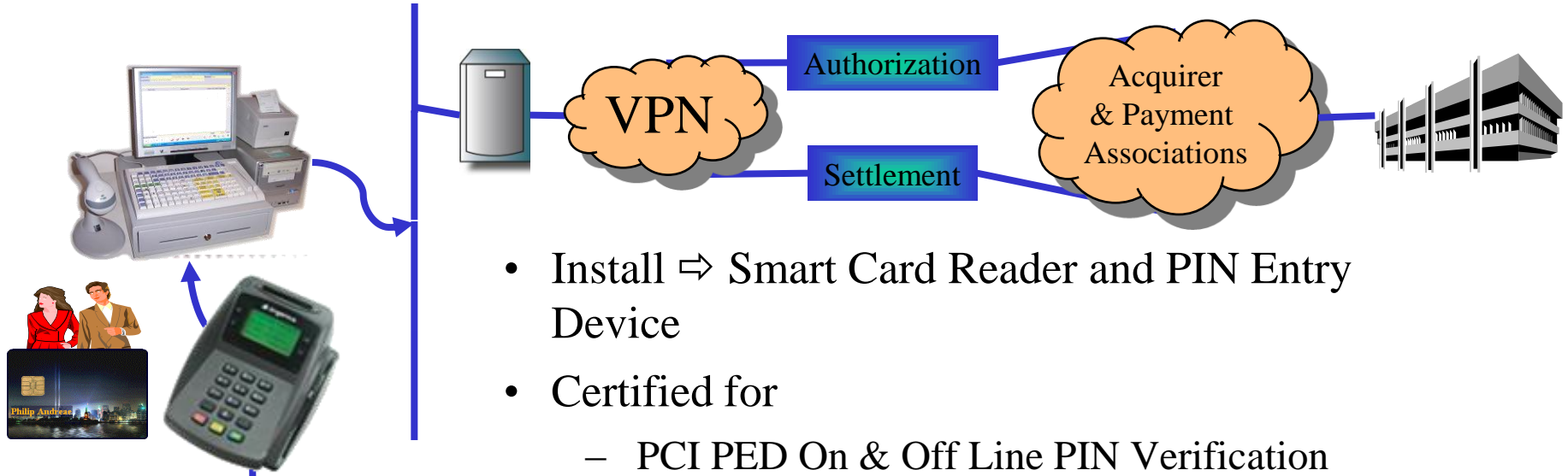
Issuer



EMV Introduces Issuer Control

- Within the ICC there are a series of Dynamic Credit Risk Management Parameters
 - One transaction in N
 - All transaction above \$XXX.xx
 - After a sum of \$XXXX.xx of off-line purchases
 - VSDC, AEPIS, MChip & the Common Payment Application defines many more Credit Risk Management parameters
- If the decision is to go on On-line the terminal forwards the request to the Issuer who authenticates the card and transaction
- The Issuer responds with an answer and can include scripts to update parameters in the card

EMV affects the Merchants Environment



- Select Application
- Authenticate Card
- Verify PIN
- Perform Risk Mngt.

- Install ⇒ Smart Card Reader and PIN Entry Device
- Certified for
 - PCI PED On & Off Line PIN Verification
 - EMV Level I & II
 - Interac SPED compliance
- Upgrade Systems and network to support new EMV data elements
- Change business processes to support EMV based payment transactions and resulting retention requirements



Canada Will Invest \$1 - 2 Billion

Bank Machines

\$ 4,000 per ATM



Bank Branch

Integrated Merchants

\$350 per POS



Petroleum

\$6,000 Per Dispenser*



Processors

Acquiring FI Processor



Payment Networks

Issuer

EMV demands significant change to the Payments message

Local Networks

100% Terminal Replacement Begun 2004

Everyone's Legacy Systems Must Be Upgraded

Merchants

\$ 450 Per POS





Why Are We Here?

- The globe (minus North America) is migrating to EMV
- June 2003 Visa Canada announced its plans
- Jan 2005 CTV W-5 documented debit card issue
- February 2005 Interac announced its plans
- October 2005 Interac defined its schedule
- American Express and MasterCard are ready
- A Multi-lateral task force is at work

**Each Stakeholder Must Engage
And Needs Its Own Strategy**



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Business Process, and
Telecommunications***

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- **Product & project management**
- **Credit & debit card payments**
- **High volume transaction processing**
- **Smart cards & their application**

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