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# Digital Dynamic CVV/CVC Codes on EMV Cards

**Francine Dubois – NID Security**

# Migration to EMV: The impact on CNP Fraud

# ABOUT EMV

**Enhanced** card authentication
**Enhanced** cardholder verification (PIN)
*Dynamic data authentication/authentic card required*

Payment info stored on **secure chip**
*Counterfeiting virtually impossible*

Reduction **in card-present** fraud

# FRAUD TRENDS & DRIVERS

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## 9% CAGR
## 2012-2017

Global adoption of EMV causes fraud to **migrate** to paths of **lower resistance**

**Growth** of US **online commerce** and transactions attracts fraudsters

**CNP** fraud losses represent more than **60% of total fraud** in Europe today

# RISE OF CARD NOT PRESENT FRAUD

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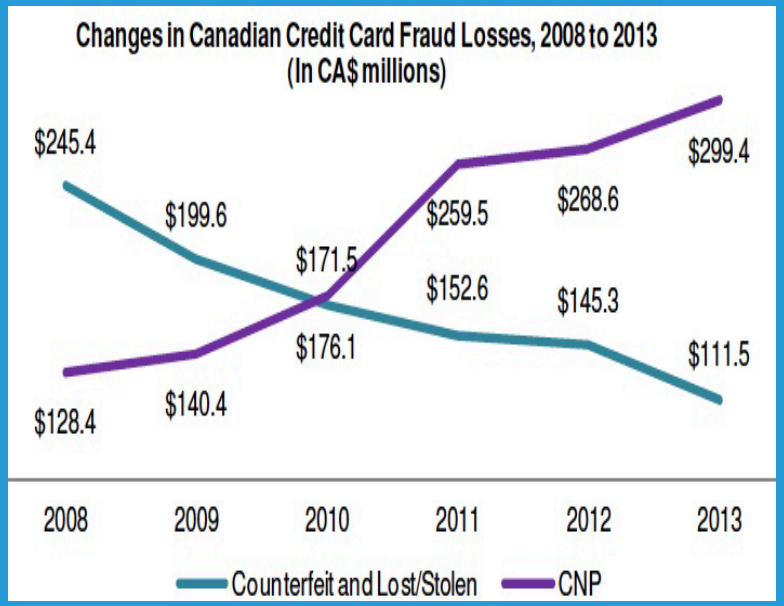
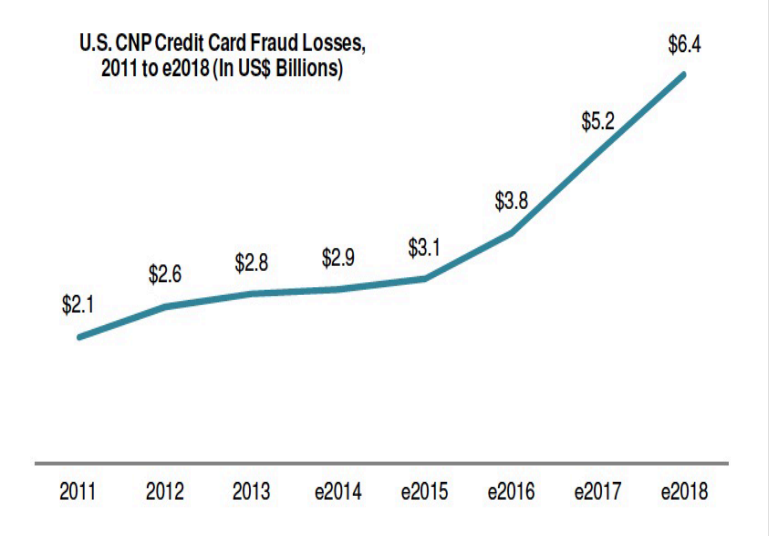
EMV enables strong decrease of counterfeit/CP fraud, but **fraud is migrating to CNP**




*1. Source: Canadian Bankers Association*

**US:** Card Not Present (CNP) fraud losses to reach **$6.4B** by end 2018




*Source: Aite Group interviews with card executives from 18 of the top 40 U.S. issuers and payment networks, April and May 2014*

**Europe:**

- CNP fraud accounts for **60%** of the total value of card fraud in 2012
- CNP fraud **increased** by **21%** to **€794M**

*"Data from the U.K., France and Australia show that CNP fraud became a larger portion of overall fraud during and after their EMV chip conversions, as EMV chip dramatically reduced the card-present fraud issues but did not address the card-not-present fraud problem." (White Paper, EMV Migration Forum)*

# CNP FRAUD, A REALITY IN DIFFERENT REGIONS

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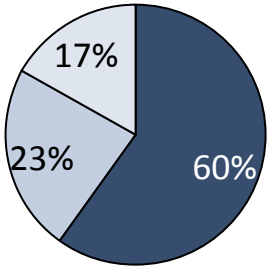
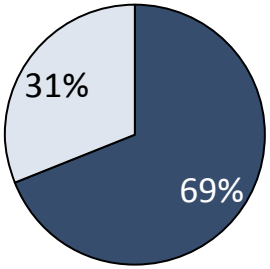
**Europe**
**Total Fraud Value €1.33B 2012 (+15% vs. 2011)**



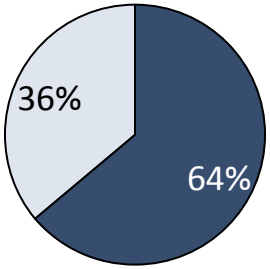

Card-not-present
POS terminals
ATMs

**UK**
**Total Card Fraud Value £479M 2014 (+6% vs. 2013)**



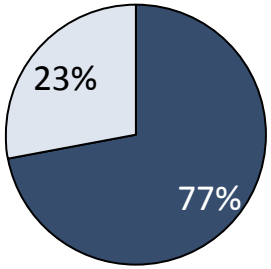

Card-not-present +10%
Other

**Canada**
**Credit Card Fraud Value $CAD 465M 2013 (+6% vs. 2012)**



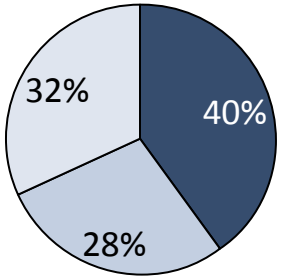

Card-not-present +11%
Other

**Australia**
**Total Card Fraud Value $AUS 300M 2014 (+16% vs. 2012)**




Card-not-present
Other

**USA**
**Total GP Card Fraud Value $4B 2012**




Card-not-present
Counterfeit
Other

*Sources: ECB, UFFAUK,, Canadian Bankers association, APCA, CyberSource, US Federal Reserve, AITE*

# FIGHTING CNP FRAUD – A DIFFICULT BALANCE

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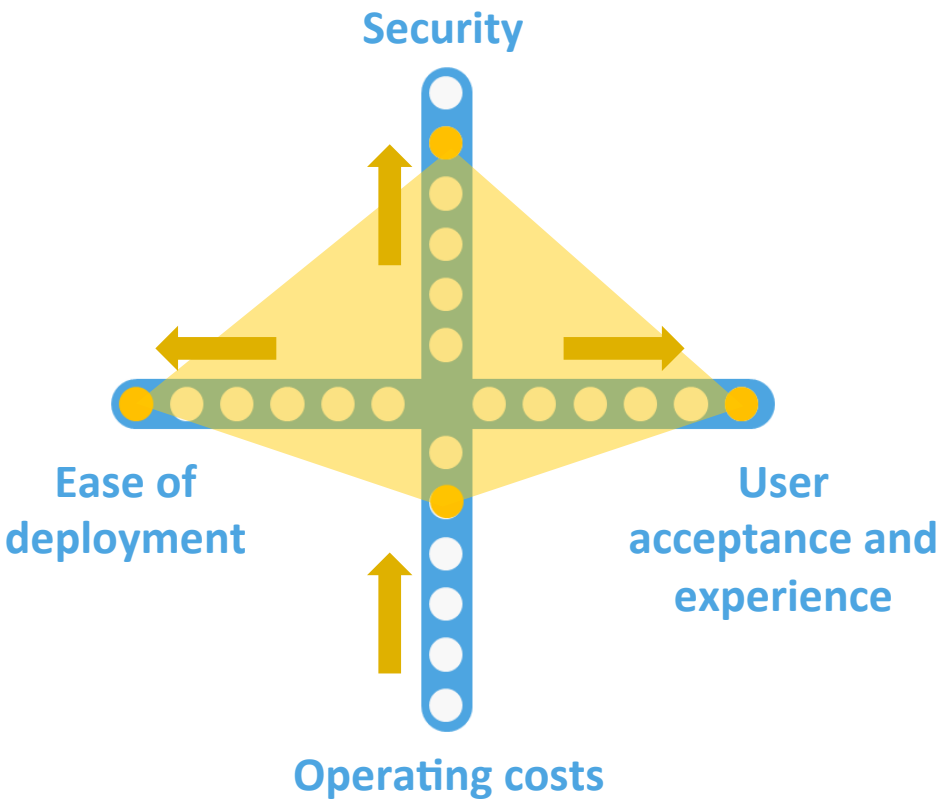
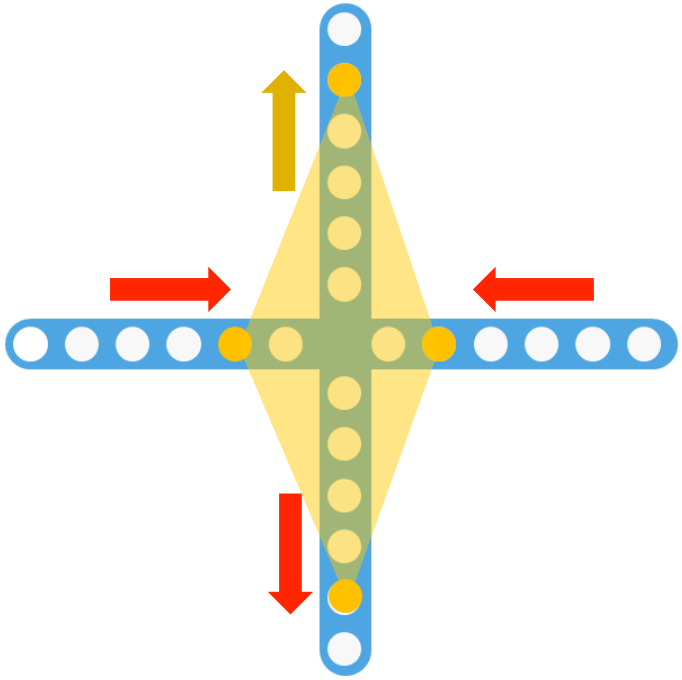
## The ideal solution




## …but in practice



# SAMPLE OF AUTHENTICATION SOLUTIONS

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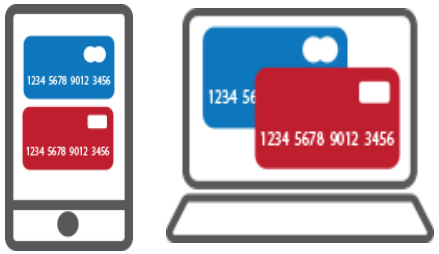
## 3D Secure

## Tokenization

## Secret question

## Virtual cards




## Keyfob/calculator

## Biometrics

## SMS

# CNP FRAUD IMPACT ON ISSUERS

## Issuers and end-users *eventually* get refunded but…

- **Cost of treatment of fraud cases and card replacement on issuers**
- **Lost revenue while card is replaced and loss of recurring revenue if switched to other card**
- **Cardholders : *"I'm not well protected" – "maybe I should limit my online activity?"* Management of recurring billing on card, …**

# In this instance, not the PAN, but the "security code"

**Stolen data used within 10-30 days following theft**

**Dynamic code valid for less than 1h**

**Security code is the easiest data to turn dynamic**

# COMPLEMENTS TOKENIZATION

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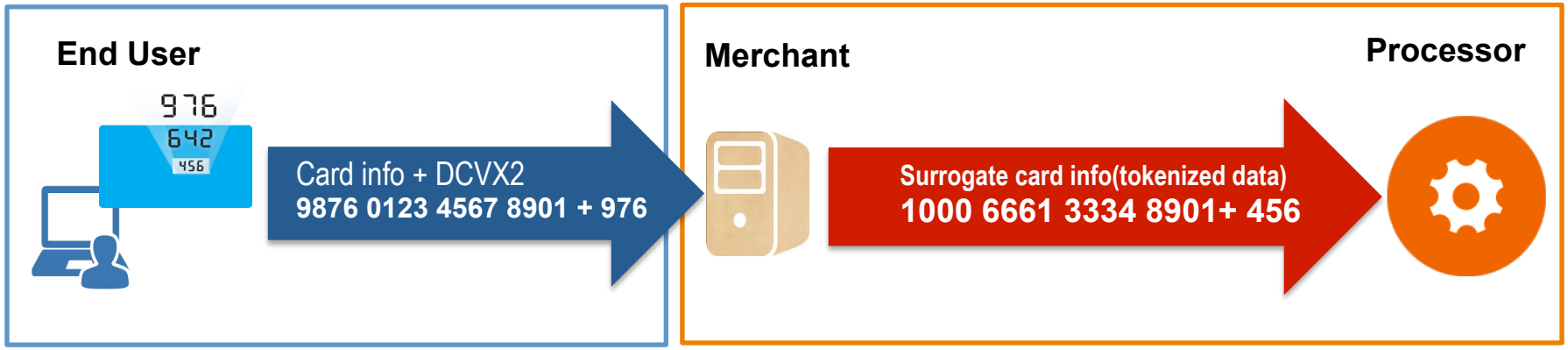


- Helps prevent fraudulent use of **stolen card info** for CNP transactions
- Adds a layer of protection at **end points** against:
  - Theft of **entered/swiped** data by malware, keyloggers, trojans, eavesdropping, shoulder surfing (i.e. during enrollment)
  - Theft of **stored plain data** in legacy systems
  - Theft of card information **transmitted over clear channels** (phone, fax, mail...)

# DYNAMIC CVV/CVC CODES ON EMV CARDS

# WHAT IS A DYNAMIC CVV/CVC CODE CARD

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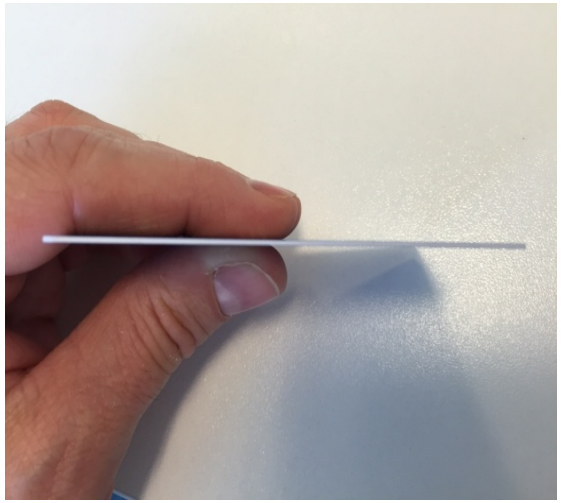

- Automatic refresh of dynamic code *(customizable frequency)*
- Small Display
- Internal battery that last up to 5yrs

- Standard credit card format *(ISO 7810)*
- Accommodates all standard card features: contact-contactless chip, embossing, magnetic stripe, …

# HIGH LEVEL VIEW OF IMPLEMENTATION SCENARIOS

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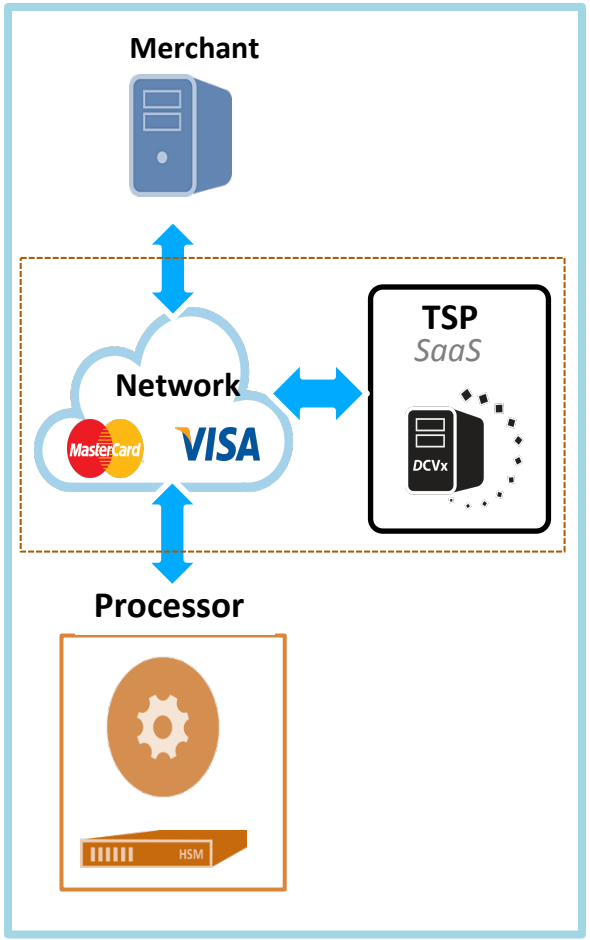
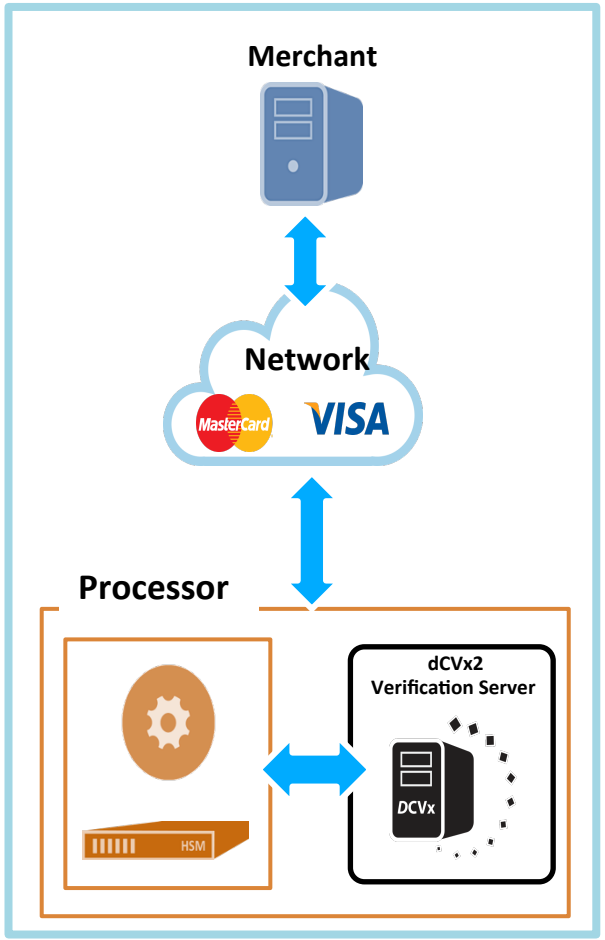
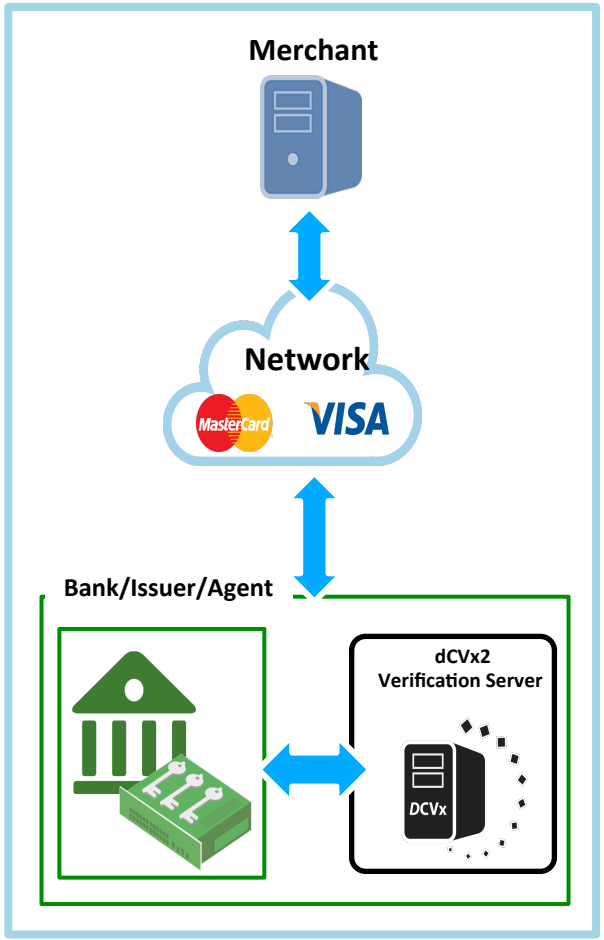
## A. Token Service Provider




## B. Hosted by processor




## C. Hosted by processing bank/issuer/agent



# SAFER, FRICTIONLESS CNP TRANSACTIONS

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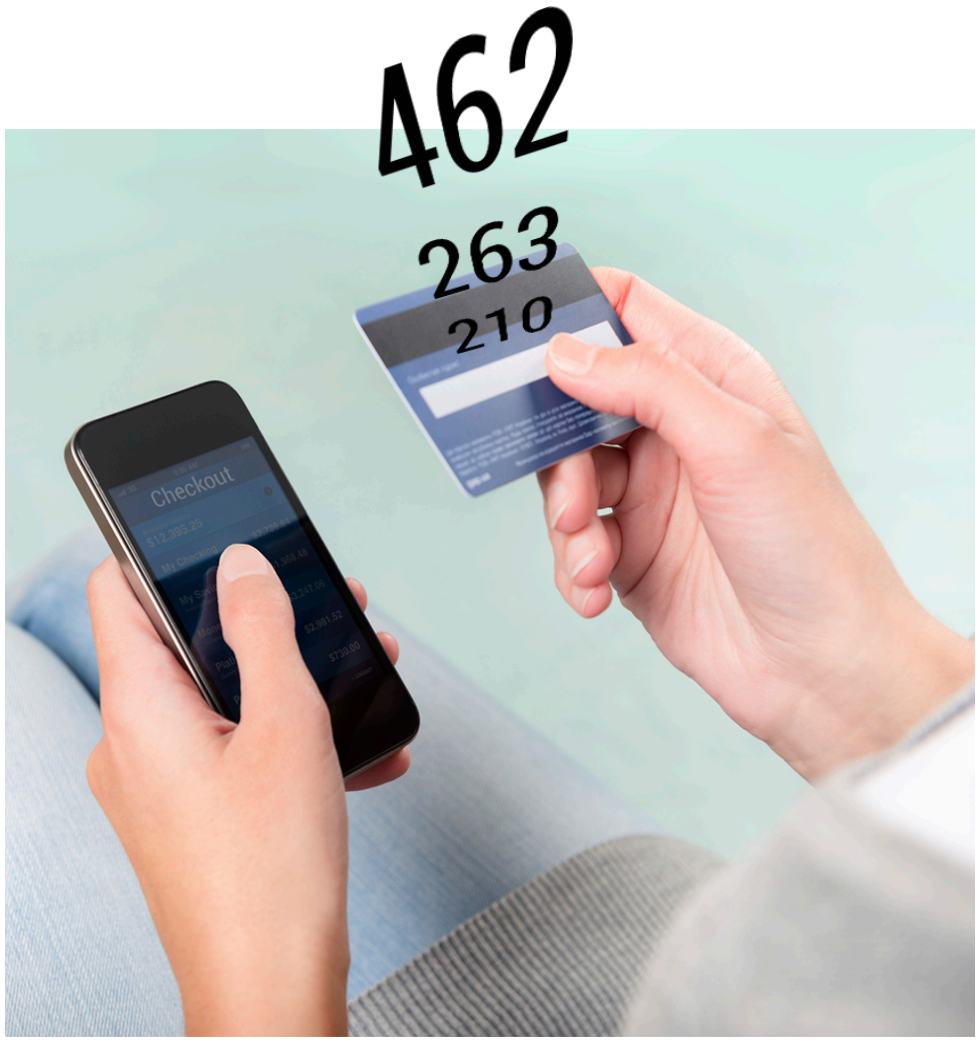


- Safer transactions over any channel (ie: website, app, voice…)
- Simple and elegant solution that works on any device
- Frictionless, no complex enrollment process
- No additional software or plugin required
- Card info less vulnerable if device/computer is lost or stolen

# PERFECT SOLUTION TO SECURE CNP TRANSACTIONS

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**Simultaneously** addresses the needs of **issuers**, **merchants**, and **end-users**

**More secure. Tokenizes** the CVC/V2, **protects** at the **source**

**Low impact** on infrastructure. An issuer only solution

**Controlled, predictable** TCO, virtually a new card at every refresh

**Top of wallet, 100%** cardholder adoption, **Frictionless,** zero learning curve.

**Transparent, frictionless** to eMerchants, **increased** conversion rates

# ABOUT NID Security

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## The World Leader in Display Card Manufacturing

**Before**

**2005** — NIDS commercialized the 1st ISO Display Card with bi-stable display

**2006** — Introduced 1st alpha-numeric card with 12-button keypad

**2008** — 3rd Gen Display Card with ultra-fast LCD

**2009**

**2010** — Introduced EMV payment card with information display & new capacitive 12-button keypad

**2011** — Introduced the VISA Codesure with dot matrix display

**2012** — 4-in-1 Display Card Debit/Credit Paypass/SecureCode

**2014** — Production ramp-up, delivery of 1M card in 6 months timeframe

**2014** — Introduced the 1st dCVV payment card

**2015** — Dual Interface DCVV, ePaper Display Cards

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