First Data enables industry payment innovation with Apple Pay™

A First Data Webinar

Thursday, September 11th, 2014

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EMV™ is a trademark owned by EMVCo LLC.
A turning point for enabling Mobile eCommerce

- New Apple Pay™ Service will be enabled on iPhone® 6 and Apple Watch™ devices
- Millions of ‘purchase ready’ consumers with a frictionless and secure mobile check-out capability
- First Data’s integrated token services to support the safety of both online and point-of-sale transactions
- Ability to support payment using the device at physical POS (In-store) using NFC technology and within a merchants’ mobile app (“In-App”)

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What does this mean?

To consumers?  Ability to use their device for more everyday things!
  • **In-Store**: Simple, secure options to pay in the store. No more fumbling for wallets or purses.
  • **In-App**: Simple, delightful and secure option to pay while she’s ‘on the go’

To our merchant clients?
  • In-App can = sales lift
  • Highly secure: eliminates the PAN from the payment ecosystem
  • Great way for merchants to engage with Millennials and future generations
  • Deliver on Omni-channel use cases
  • MCX
  • Interchange, EMV™ & Tokenization

To our issuing clients?
  • Great way for issuers to engage with Millennials and future generations
  • More ways for accountholder to take the bank with them when they shop.
  • Consistent with EMV™ and Tokenization mandates
  • Highly secure: eliminates the PAN from the payment ecosystem
  • Bank as innovator

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First Data Innovator & Grand Collaborator: First Data was selected as a partner by Apple® and is poised to capitalize on the integrated status and position that we’ve earned.
How it works: In Store and In-App payment

<table>
<thead>
<tr>
<th>Consumer</th>
<th>Merchant</th>
<th>Issuer</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Downloads App from iTunes®&lt;sup&gt;®&lt;/sup&gt;</td>
<td>1. Reviews and chooses from First Data’s competitive e-commerce enablement options</td>
<td>1. Enrolls in tokenization service</td>
</tr>
<tr>
<td>2. Has Apple Pay™ enabled/provisioned on device</td>
<td>2. Sets up NFC enabled equipment or engages website / app developer to create integrated ‘inApp’ solution through Payeezy.com</td>
<td>2. Manages provisioning rules</td>
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<tr>
<td>3. Makes safe, secure purchases in store via NFC enables POS device or within mobile App</td>
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<td>3. Provides cardholder service for tokenized transactions</td>
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<td>4. Receives tokenized receipt (paper or electronic)</td>
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Tokenization
Introduction to Payment Tokenization

What is Card Tokenization?

- Tokenization replaces a card's primary account number (PAN) with a random numerical sequence unique to a specific device, merchant, transaction type or channel

What does a card token do?

- Improve security by eliminating the risk of exposing PAN data within systems/files or transactions
Tokenization & EMV™

How does Tokenization work with Encryption and EMV™?

**Tokenization vs Encryption**

Encryption encodes the data, keeping the original data present and requires authorized parties to utilize an encryption key to translate it back to the original detail.

Tokenization replaces the original data with a random number having no relationship to its original form. The original data is not transmitted as part of the token transaction and only the Token Service Provider (TSP) can return the data to its original form.

Payment Tokens can be encrypted to provide the best of both worlds.

**What is the difference between EMV™ and Payment Tokenization?**

- EMV™ enhances security of the chip-enabled card at the point of sale to the processor, while tokenization replaces the PAN for digital transactions from the point of sale to the network Brand.
Previously released Tokenization Models

First Data Integrated Token Services

TransArmor – Merchant Tokenization (2010)
- Encrypts & Tokenizes data between merchant & acquirer

Issuer Tokenization for Data-at-rest (available for Omaha early 2015)
- Tokenizes PANs for outgoing reports, files and open data streams (ODS)
- First Data acts as the token vault for this solution
- NE Debit platform: Development updates available in 2015

First Data Integrated Token Solutions

TransArmor: Encryption & Tokenization between Merchant & Acquirer

First Data Token Vault replaces the PANs on all reports and files with a non-transactionable token. Goes live early 2015.
Tokenizing Digital Payments

First Data Integrated Token Services
Recent industry changes

Brands introduce new framework for global tokenization standard

“As more consumers make purchases with mobile phones, tablets and PCs, we are committed to showing industry leadership in the development of new standards that offer the same interoperability, reliability and security as traditional card payments.”


• The standard allows the traditional account number to be replaced with a digital payment “token” for online and mobile transactions
• The standard assures interoperability and consistency for all participants
• A dedicated task force at EMVCo worked with the card brands on the Payment Token Standard
  • EMVCo will be responsible for maintaining the Standard
Recent industry changes

New announcement about Apple iPhone® 6

• Apple Pay™ will leverage the global tokenization standard
  • Apple Pay™ is an easy, secure and private way to make purchases
  • Security and privacy is at the core of Apple Pay™ combining hardware and software to keep payment information protected
  • Actual account numbers are not stored on the device, nor on Apple® servers, and cashiers will no longer see your name, credit card number or card security code, helping to reduce potential fraud
  • Transaction data that is stored is kept anonymous and recent purchase history is kept private, stored only on your device and not on Apple® servers, nor is it used for Apple® marketing

“Apple Pay™ has transformed mobile payments in a way that our customers will love, and will have an impact on the industry like never before. We’re thrilled to bring First Data solutions to support Apple Pay™, along with the issuing banks, merchants developing apps and consumers to provide an easy, safe and secure way to pay with a single touch.”

—Apple®, Sept 9, 2014
Tokenization for Digital Payments

Introduction to Digital Payment Tokens

Digital Payment Tokens

• Tokenizes the PAN for use during purchases made from a device or online merchant
• Token only (not PAN) is passed from device or online merchant through point of sale, merchant acquirer, and to the network brand (Visa, MasterCard, Amex)
• American Express, MasterCard, and Visa each will manage the token provisioning and token vault
  • Token products implemented by Amex, MasterCard and Visa vary by brand
  • Each brand will have a unique token vault
• Apple® will be the exclusive enabled Digital Wallet provider for the initial offering
• Agreements are required from Apple®, Visa and/or MasterCard, and First Data
  • First Data’s able to support your enrollment for all three parties
  • Digital Payment Tokenization is not a mandate for Issuers
Digital Payment Tokens

Consumer experience – Apple Pay™ enabled Digital Wallet example

Consumer enters their account data to the device during phone setup (picture of card)
- The device sends a message to the appropriate Brand requesting a token
- The Brand makes a decision based upon the Issuers criteria whether a token should be provisioned

Consumer is unaware that the token request takes place, full token is not displayed
- The token, not the PAN, is stored and used during any purchase transactions via that channel
- Issuer card artwork is displayed, full token is stored but last 4 of PAN are displayed in Passbook

Convenient use of consumer’s device instead of a card at any NFC enabled terminals
- The iPhone® 6’s thumb print biometric will be used at NFC enabled POS to authenticate and trigger payment
- The device can also be used to facilitate “In-app” payments for applications housed on the device
Digital Wallet usage

Consumer experience – Usage and Merchant availability

• Merchant adoption of NFC terminals will grow with EMV™ upgrades
  • Projecting rapid adoption of NFC capability 2015-2016 as part of EMV™ upgrades
    • Most entry level EMV™ terminals will be NFC enabled
• In-app purchases will be available for all Apple® apps to leverage
  • First Data merchants can integrate the In-app service via Payeezy.com to allow rapid enablement of Apple Pay™
  • In-app purchases will be processed as card-not-present transactions
• 41% of smart phone users have an iPhone® today
  • Apple® states the average iPhone® life is 3 years between upgrade
  • Projecting rapid adoption of NFC capable smart phones over next 3 years
    • Apple® and other device manufacturers likely to follow suit
• Release of the Apple Watch™ with Apple Pay™ expands the market
First Data Integrated Token Services

**NEW Apple Pay™ digital wallet enablement**

- Encrypted token transmits from device to merchant, acquirer and to Brand
  - Chip on phone encrypts data following EMVCo Standard
  - Authorizations and transactions replace PAN with token between these three entities
  - PAN and token are transmitted between the Brand and First Data
- The Brand provides the token vault to decrypt element and transmit PAN and token to the Issuing Processor

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**Digital Payment Tokens** – Digital Wallet at POS (4th Qtr 2014)

- Token is stored in Device and supports multiple transactions. At NFC enabled POS the authorization and transaction are sent as an encrypted token to Brand
- Brand unencrypts then sends the PAN and token through to Issuing Processor
- Token data reports provided to Issuer
First Data Token Services

NEW Apple Pay™ In-app purchase enablement

- Using an iPhone® 6 with a stored token:
  - A customer pays for purchases within a device application (“In-app” available late 2014)
  - Purchase is made as an encrypted token, from within the app
  - All apps available through Apple® can be enabled to accept In-app payments

Digital Payment Tokens – In-app

- Similar functionality for Card-on-file (COF) merchants is expected in 2015
  - Online purchases through COF merchants could be supported
  - COF enablement will be driven/supported by the Brands

Token is stored in Device and encrypted during an in App transaction.
Brand sends the PAN and token through to Issuing Processor
Token data reports provided to Issuer

Digital Payment Token Provisioning

Token Service Provider

- Tokens are created and maintained by the token service provider (TSP)
- The brands (Amex, MasterCard, Visa) are each acting as a TSP that:
  - Provides decision engine for Issuer defined provision rules
  - Issuer defined chip personalization will take place during the token provisioning process
  - Issues the token back to the requestor so payments can be facilitated
  - Interacts with First Data so the Issuer knows a token is generated for the PAN
  - Provides servicing web portal to access status, add, delete, suspend or activate tokens
  - Manages BIN assignment
Digital Payment Token Provisioning

Token Service Provider

- A token is assigned to a PAN and remains in effect until it is deactivated
  - Once provisioned, the token is ‘locked down’ to usage only from a specific device or card-on-file merchant
  - Issuer will control activation, suspension or deactivation of tokens for the cardholders
  - Every device or COF merchant will have a different and unique token
  - A cardholder can load multiple cards to a device or online COF merchant, a unique token is provisioned for each

One card can be entered into multiple devices or COF merchants

A unique token is created for each unique device or COF merchant and stored for future payments
Customer Service for Tokens

Brand token servicing for Omaha & NE, SE & West platforms

• Each Brand provides a customer service web portal
  • Visa’s service portal is called the Life Cycle Management portal or LCM
  • MasterCard’s service portal is called MC Digital Enablement Services or MDES

• Portal service includes:
  • View all tokens associated with PAN & their current status
  • View all transactions performed with a specific token
  • Change the status of a token (activate, suspend, deactivate)

• Additional batch services supported by Brands:
  • Large scale changes (i.e. re-issue) can be supported by batch from Issuer directly to Brand
  • See Roadmap for long term automated solutions
First Data Integrated Token Services

Enabling Financial Institutions to accept Digital Payment Tokens (all Credit & Debit solutions)

- Issuer onboarding, programming and data entry
  - Onboarding forms will be provided to client covering:
    - Token provisioning rules
    - Terms & Conditions
    - Card Art
    - Token BIN range assignment
  - Once the form is complete, ballpark of 1-3 weeks for setup

- Ongoing provisioning rules changes

- Train the trainer for customer service
  - Full customer service support is done via web portals supplied by the Brands
    - Visa = LCM, MasterCard = MDES
  - First Data will provide initial training on the LCM and MDES

- Level 1 Service for all token issues, LCM and MDES

- Licensing for First Data, MasterCard and Visa
Why offer tokenization?
Motivation to embrace the new technology

• Marketability and Branding
  • Build customer image as a technology leader – enabling:
    • Highest level of security available for In-app (card not present) and POS transactions
      • Tokenized, encrypted and biometric authentication
    • Customer convenience
      • Apple Pay™ makes it simple for your customers to spend
  • Attract new customers and secure customer loyalty
    • Projected iPhone® 6 sales of 10M+ opens a new market of perspective customers
      • Lead the charge so that your cardholders have an option to set you as the default in their device
      • First Data anticipates many other device manufacturers to follow suit and utilize the EMVCo standard for tokenization
  • Reduce risk of account number exposure
    • Eliminate PAN data to reduce risk and impact associated with data breaches
    • As EMV™ becomes the standard fraud will move to less secure payment methods
STAR network specific functionality
First Data Integrated Token Services

STAR network digital payment token enablement

- **STAR Network Digital Payment Process**
  - STAR recognizes BIN is flagged for tokenization; and “suspends” transaction
  - STAR exchanges Token with the True PAN from the TSP; TSP also does card validation (cryptography/CVI)
  - STAR “re-starts” transaction and passes True PAN (and optionally Token) to the Issuer for authorization
  - Issuer approves or denies transaction and responds to STAR
  - STAR exchanges True PAN back to Token and sends response back to the POS Acquirer and on to Merchant
  - STAR sends a “history advice” to the TSP as final status of payment

Digital Payment Tokens – Digital Wallet at POS (4th Qtr 2014)
Is STAR’s Token Solution fully Durbin compliant?

STAR Network’s Token Solution

• STAR Network will be fully capable of supporting tokenization for issuer financial institutions. No Network can offer a broader set of consumer use case alternate unaffiliated routing functionality to the merchant than STAR.

• Each Financial Institution should contact their internal counsel relative to compliance issues including Reg II, however, we believe the most compliant, least risky path, for Durbin compliance is to ensure that all transaction types (NFC, In-App and future) have two unaffiliated networks enabled on devices that a bank approves for provisioning

• Currently, Visa and MasterCard as TSP providers are limiting the transaction types supported for all debit networks, including Interlink and Maestro, to only NFC POS. We are working with both these network / TSP providers to expand the alternate network merchant access to all consumer use cases.
Summary of operational considerations

• STAR STATION Exception Processing and Transaction Research:
  • Issuing STAR Members that participate in a tokenization service can perform Transaction Research and Exception Processing by inputting either the True PAN or the Token PAN
    • Exception Reports for Issuers will contain both the PAN and the Token
  • Merchants and POS Acquirers can perform Transaction Research and Exception Processing by inputting the Token PAN
    • Exception reports for POS Acquirers will include the Token PAN

• STAR Operating Rules coming this Fall
STAR Token Exchange Service

Implementation steps and additional information

• STAR is targeting implementation in 4th Qtr of 2014 to support STAR Members subscribing to either the Visa or MasterCard TSPs

• Interested STAR Members should:
  • Register with Visa or MasterCard for this service
  • Inquire to their Issuer Processor as additional support may be available e.g. First Data Debit Processing
  • Sign up for the Token Exchange Service with STAR
    • Provide the tokenization BINs to STAR
    • Review and choose the technical support options (development required if Token data is requested)
    • Schedule certification if applicable (available for EMV formatted transactions beginning January 2015)

• STAR POS Acquirers must certify with STAR as both authorization and response messages will include additional token data
  • Certification available for STAR Chip formatted transactions beginning January 2015
Thank You