

The Evolving Landscape of Payments – Technology and Security

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Agenda

- EMV After affects – what's the latest?
- Payment Tokenization – Securing Payments
- Mobile Payments – Rapidly making a difference
- P2P Payments – Faster Payments are here

Consumers are changing how they shop... Connecting through more channels and devices.

New consumer
interaction points
are growth
opportunities...

...but increase
the complexity
of managing
fraud.



EMV-Chip Technology



What have we seen so far?

- Over 62% of US credit cards now have chips.
- Over 1.4 million merchant locations are accepting EMV cards
- Counterfeit fraud is shifting away from chip merchants as predicted
- Card not present fraud is up
- Consumers complain about slow transactions



EMV – Where are we now?



How's Washington doing?



- Over 70% penetrated – one of the highest states in the country
- Only 25% - 29% merchant locations accept chip cards (as of July 2016)

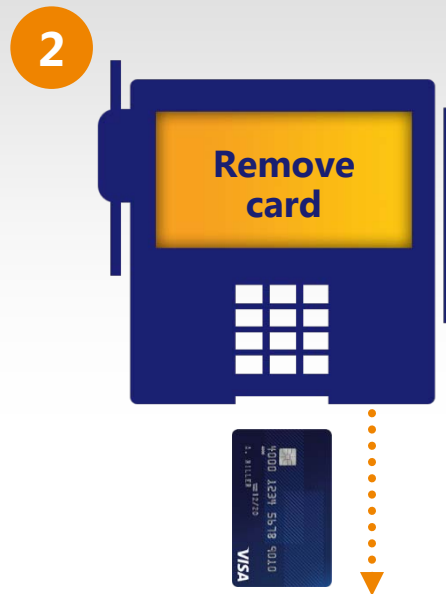
How Quick Chip for EMV works at the POS



**Insert the card face up,
chip end first**



**Remove card when prompted.
Processing should take
2 seconds or less**



**Follow prompts on screen
to finalize transaction**



POS = Point-of-Sale

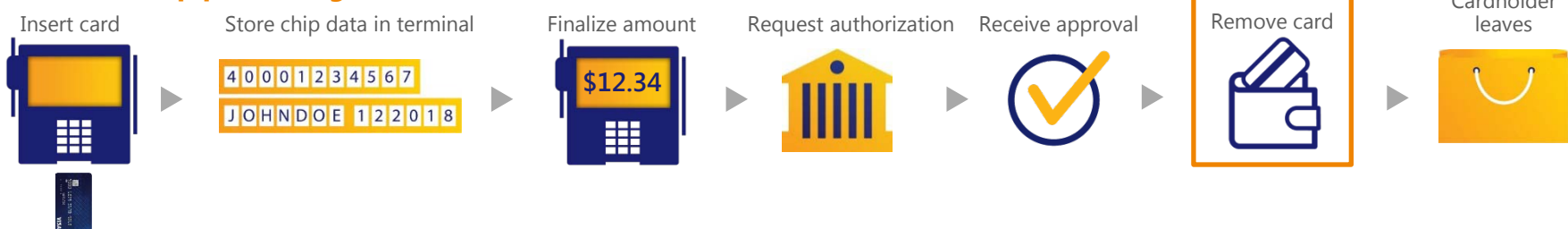
How Quick Chip for EMV processing works behind the scenes

As with magnetic stripe processing, the cardholder can insert the card at any time during the check-out process

Quick Chip processing



Standard chip processing



MasterCard's M/Chip Fast

- Works similar to Visa Quick Chip



What to do about Card Not Present Fraud

- One-Time Pass Codes
- Enhancements to Verified by Visa and MasterCard Secure Code
 - Geo Locator
 - IP Address
- Transaction Alerts – Visa and MC Mandate for October 2016
- Payments made through Visa Checkout or MasterPass have some enhanced levels of security



Tokenization



Tokenization



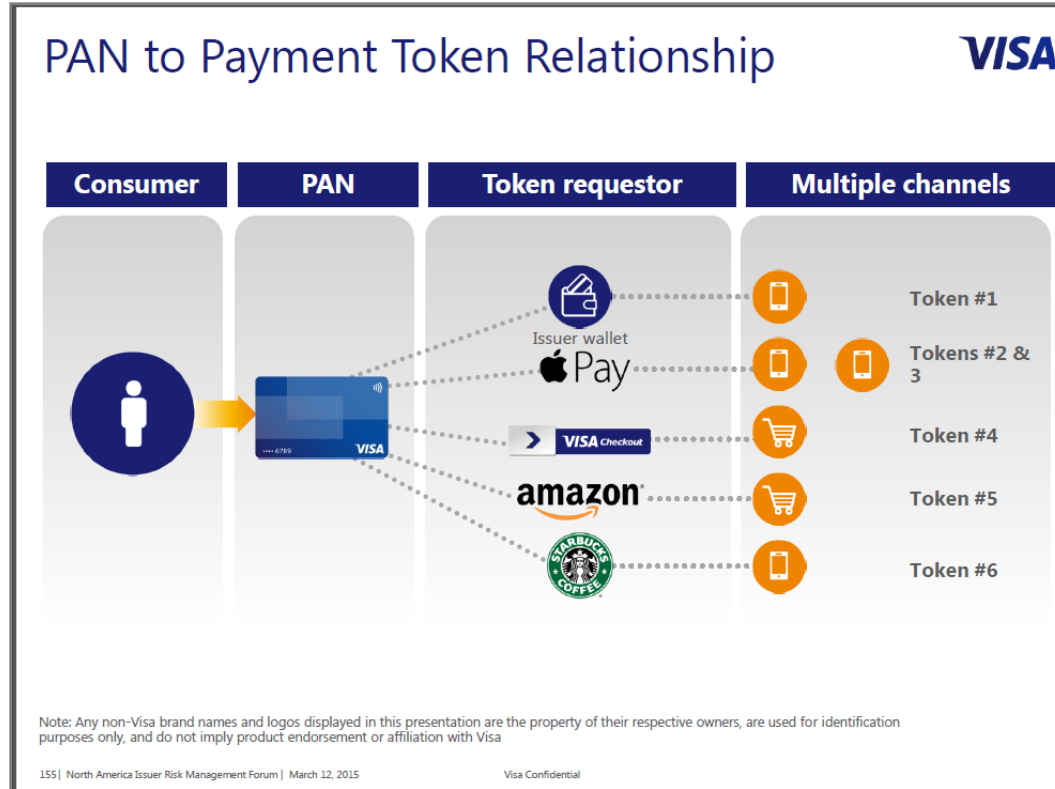
Tokenization Definition:

Tokenization replaces a traditional payment card account number with a unique, digital, one-time use token (or code). The tokenization process happens in the background in a way that is invisible to the consumer.

Benefits:

- Simplifies the consumer's purchase by removing the need to enter and re-enter account numbers when shopping on a smart phone, tablet or PC.
- Reduces fraud in e-commerce and m-commerce transactions by removing sensitive card account information from the payment process. The data is useless to fraudsters
- Tokens ensure that data is not transmitted or stored by a merchant in an unsecure format.

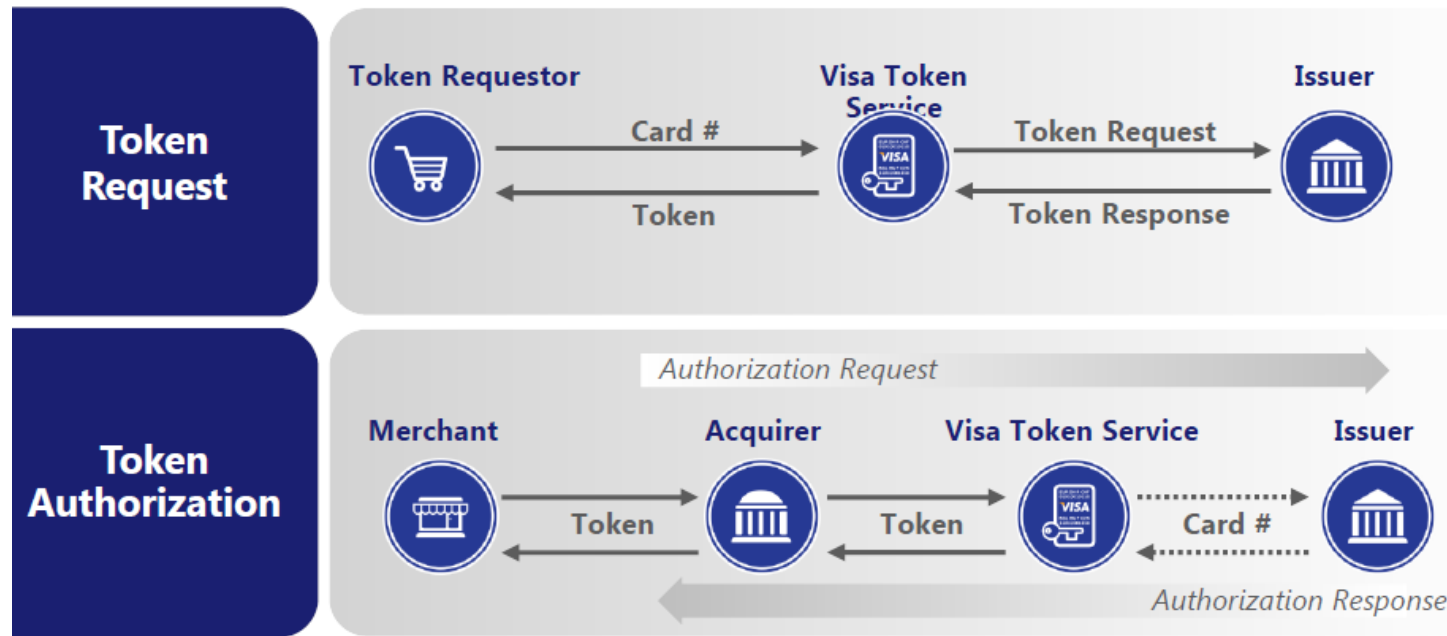
Tokenization



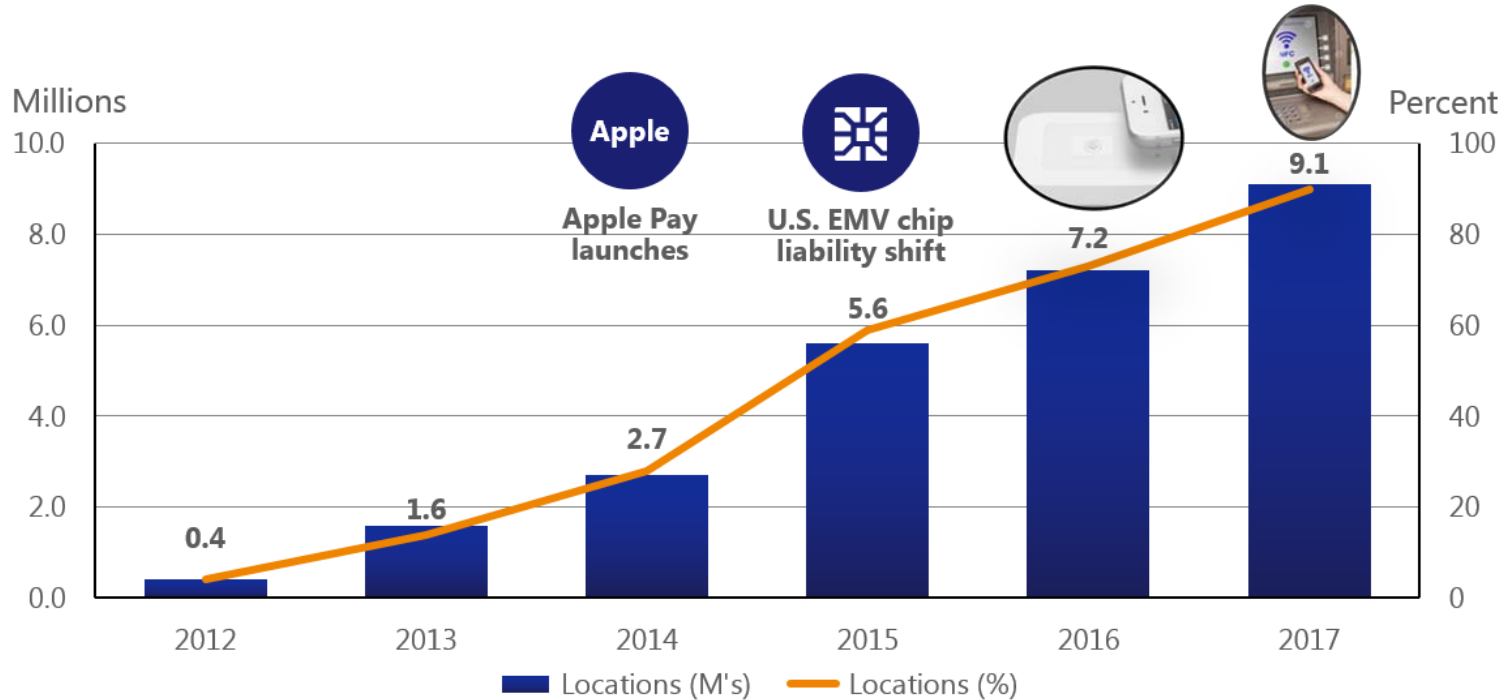
The **Primary Account Number** is changed into a token and tokens vary by merchant.

Tokenization

Token Request (*provisioning*) and Authorization Processes



Chip is driving U.S. merchants to upgrade to EMV/NFC combination terminal infrastructure



Note: U.S. penetration forecast for EMV chip/NFC-ready hardware terminal, 2012 to e2017 (in millions of locations/percent of locations); NFC = Near-field communication
Source: AITE 2015

Mobile Payments



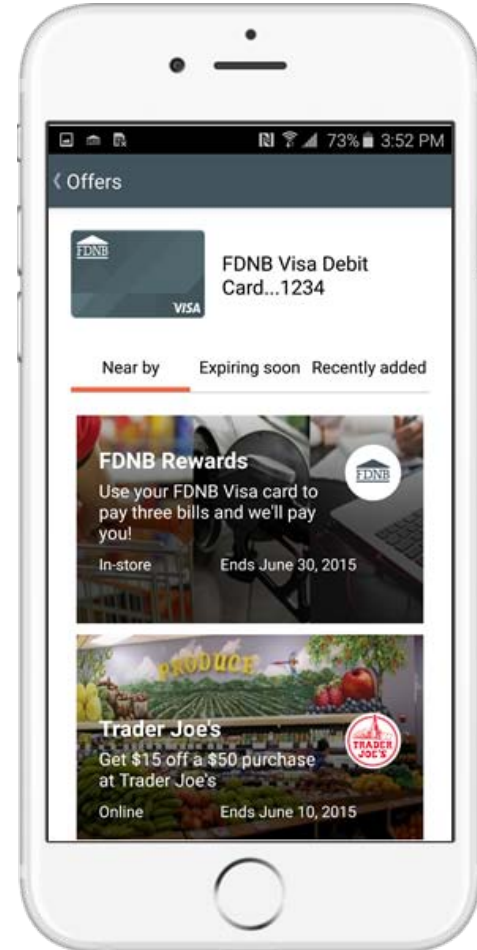
Apple Pay






Android Pay



Samsung Pay



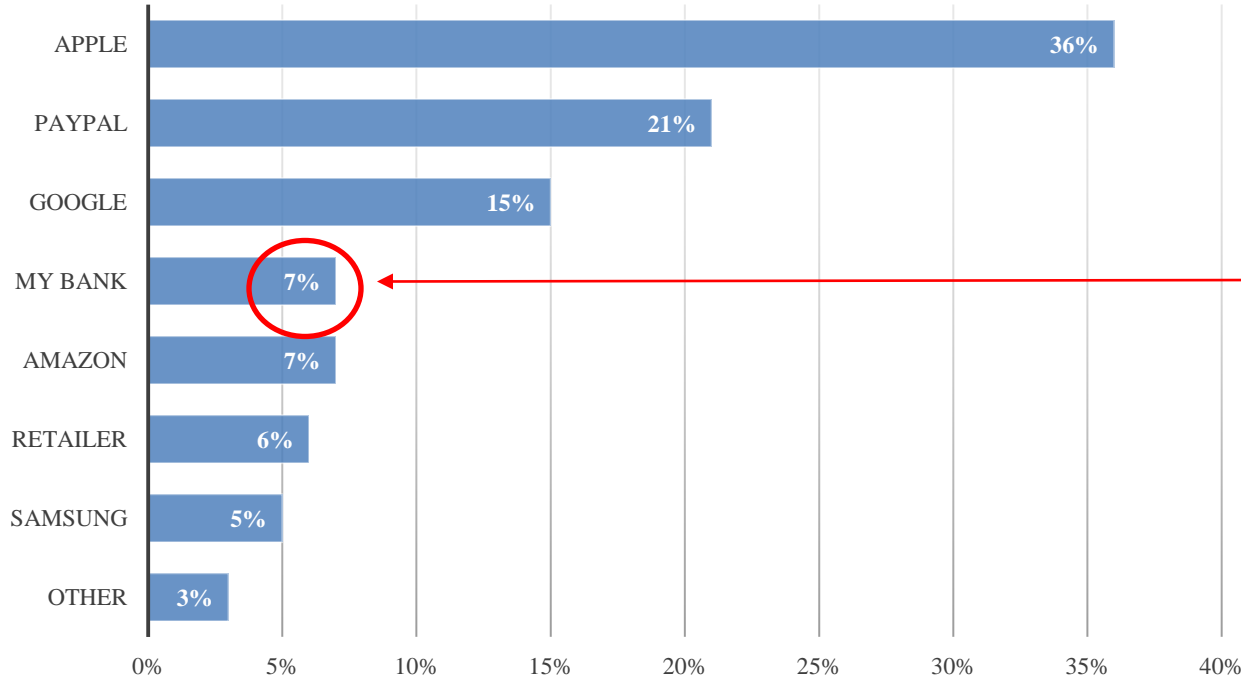
Comparing Apples to Apples Android

Wallet Providers			
Availability	Only iPhone 6, iPad Mini, iPad Air 2, iPhone 5 & later w/Apple Watch	Android devices running 4.4 KitKat or higher	Samsung Galaxy S6 and S6 Edge
How You Use It	Touch ID at POS and in-app purchases	Tap-to-pay at POS and in-app purchases	Tap-to-Pay
How It Works	Uses NFC to send your encrypted payment information	Uses NFC to send your encrypted payment information	Uses NFC
Security	Most secure. Retailers don't even get your credit card. Utilizes Tokenization SE	Most secure. Retailers don't even get your credit card. Utilizes Tokenization HCE	Network Tokenization and Biometric ID

How are consumers feeling about Mobile?

- In recent study by First Annapolis Consulting, 74% responded having made at least one mobile payment in last year – *up 40% since May 2015.*
- More than half of the respondents have a mobile wallet but *only 7% from their bank*

Current Mobile Wallet Providers

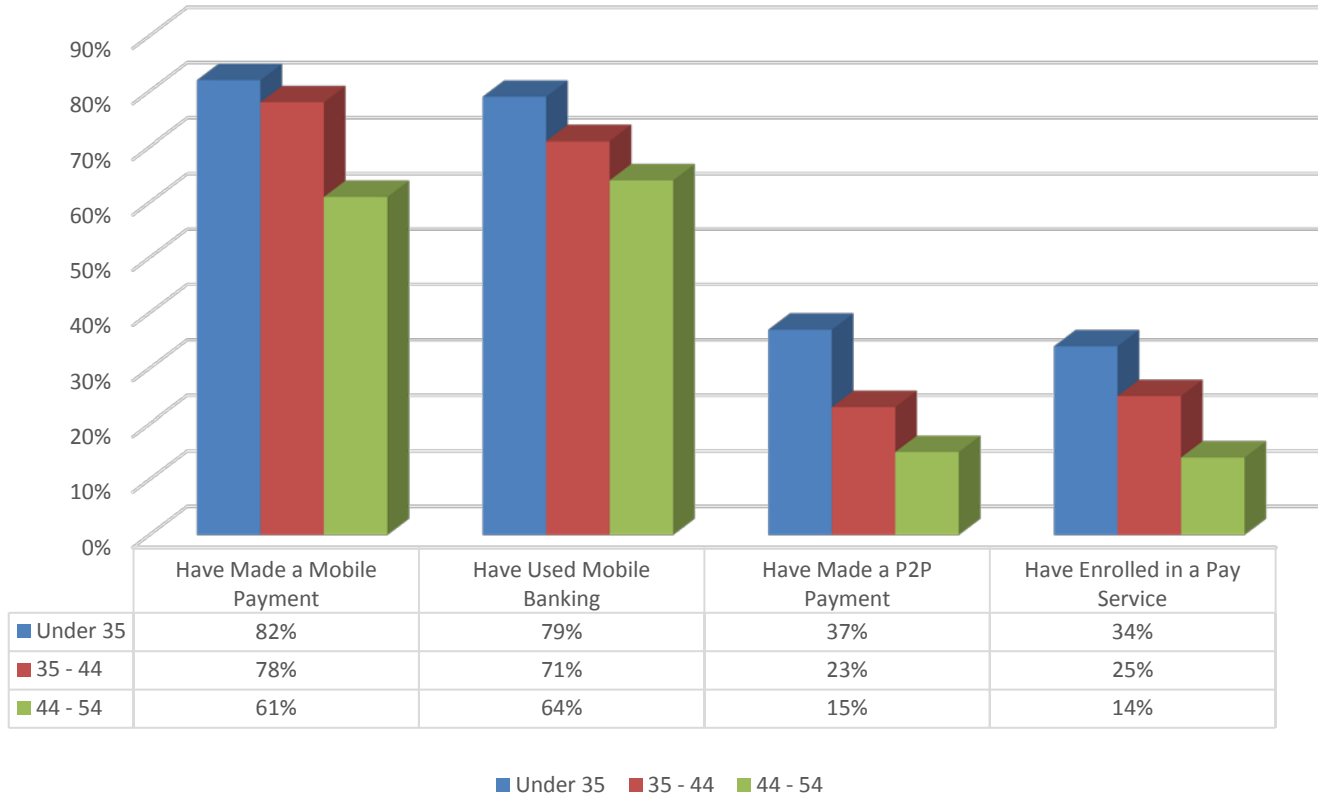


45% surveyed said they would prefer a wallet provided by their bank

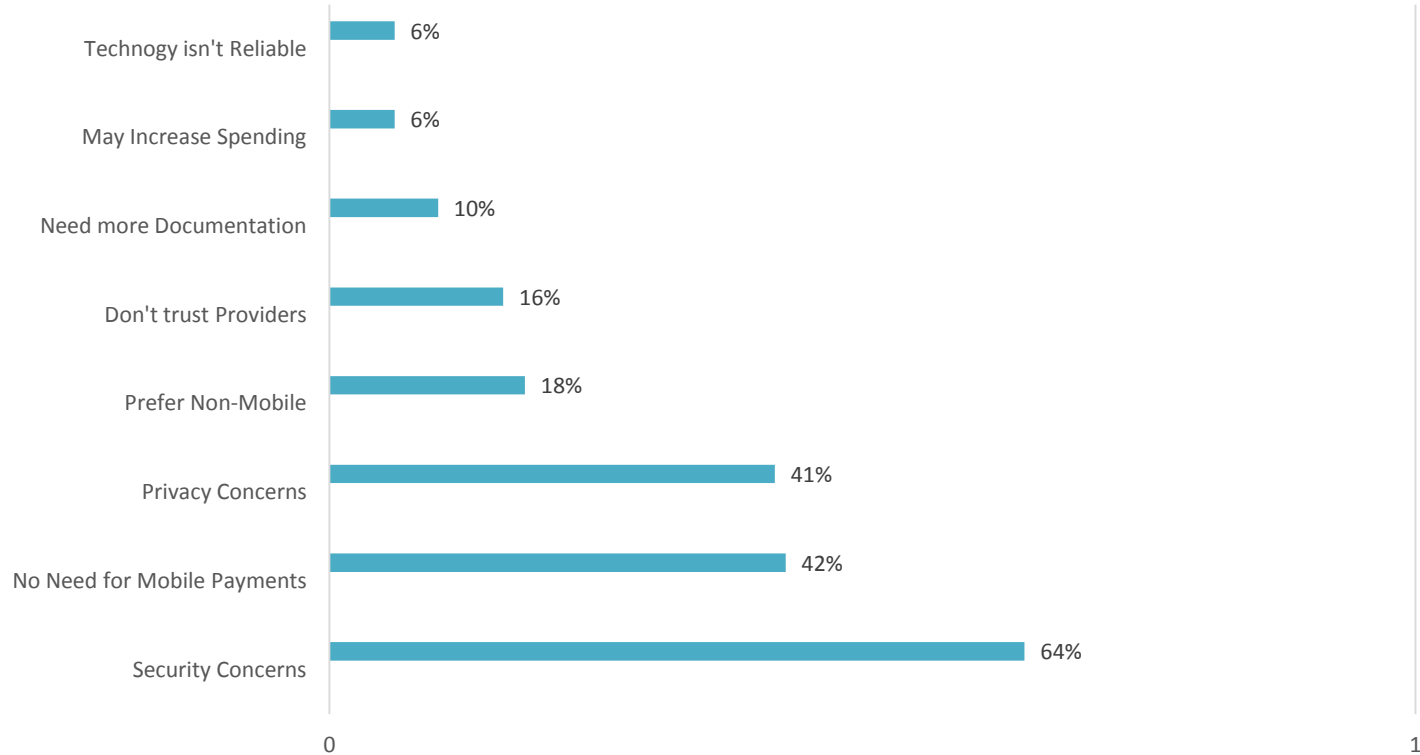
Huge opportunity for community banks



Mobile Adoption by Age

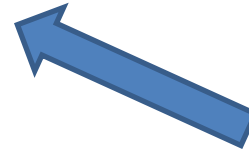
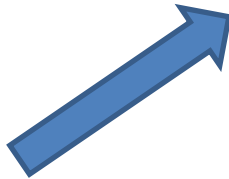
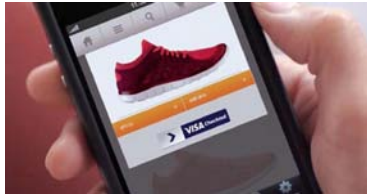


Reasons for Not Using Mobile Payments



But the basic account is needed

- Mobile payments are still tied to a basic transaction account.



Faster Payments and P2P



What is Same Day ACH?

- Same Day ACH enables us ubiquitous same-day capability for virtually any ACH transaction, creating options for the businesses, governments, and consumers who want to move their money faster
- Same Day ACH builds on existing, next day ACH Network capabilities to establish new options for same-day clearing and settlement via ACH, creating a building block for a variety of products and services

Different stakeholders pushing faster Payments

Federal Reserve banks/NACHA



- The Fed launched real time payment initiative with the objective of driving innovation, improving efficiency, and increasing competitiveness
- Conducted a survey to understand the demand - 69% of consumers prefer instant or one hour payments
- Defined criteria for faster payment system
- Relying on the private sector to build new faster payment systems
- NACHA and the Fed have both approved same day ACH with interbank fee of 5.2 cents

Industry momentum



- Early Warning System (EWS) and clearXchange member banks announced a merger to enhance the P2P platform that all banks and credit unions can connect to
- Fiserv and EWS announced partnership to facilitate real time bill payment and deposit capabilities to more than three quarters of U.S. DDA account holders
- The Clearing House (TCH) bank consortium has partnered with FIS and VocaLink to build a real time payment solution
- Visa and MasterCard have launched their respective real time¹ P2P solutions, Visa Direct and MasterCard Send



Why Same Day ACH?

- Responding to Market Needs:

- 71MM ACH payments are made every day
- Same Day creates an “option” – a choice – to move some of these payments faster
- Many use cases need Same Day ACH functionality
- Allows you to better serve your customers and directly support their needs



- Strategically:

- An action that FIs are taking now to modernize the payment system – demonstrating that FIs can work together to advance payments
 - While compensating RDFIs for the investment
- Creates a foundation on which FIs can build other services



What is Same Day ACH?

Two New Processing Windows

- **Morning window** – 10:30 am ET for file submission; 1:00 pm ET settlement
- **Afternoon window** – 2:45 pm ET for file submission; 5:00 pm ET settlement

RDFI Requirements

- All RDFIs in ACH network **mandated** to receive same-day payments
- **Funds availability** for ACH credits by 5:00 pm local time

Same Day Entry Fee

- **Fee paid from the ODFI to the RDFI** to provide some recovery for RDFIs to make Same Day ACH a reality

Existing one-day and two-day ACH processing and settlement capabilities will not be impacted

A Phased Approach to New ACH Network Functionality

To allow the industry to acclimate to a faster processing environment, as well as to ease the industry's implementation effort, these new capabilities will become effective over three phases beginning in September 2016.

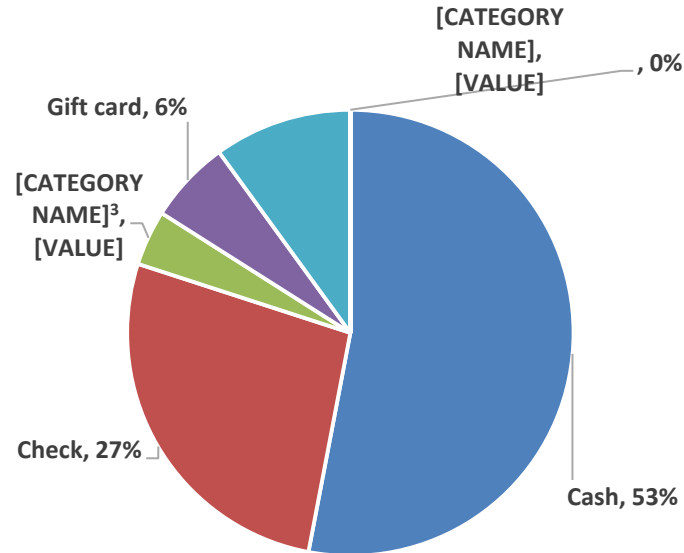
Functionality	Phase 1 Sept. 23, 2016	Phase 2 Sept. 15, 2017	Phase 3 March 16, 2018
Transaction Eligibility (\$25,000 limit; IAT not eligible)	Credits only	Credits and debits	Credits and debits
New Same Day ACH Processing Windows	10:30 am ET and 2:45 pm ET	10:30 am ET and 2:45 pm ET	10:30 am ET and 2:45 pm ET
New Settlement Time(s)	1:00 pm ET and 5:00 pm ET	1:00 pm ET and 5:00 pm ET	1:00 pm ET and 5:00 pm ET
ACH Credit Funds Availability	End of RDFI's processing day	End of RDFI's processing day	5:00 pm RDFI local time



Person to Person Payments – P2P



Payment mode/ instrument¹



Today, 80% of P2P payments are being done with cash or checks!

Traditional Competitors

WELLS
FARGO

① First National Bank
Omaha
One with You.™

CHASE



New Competitors



DWOLLA



Visa Direct

- Visa is a global payments technology company working to enable consumers, businesses, banks, and governments to use digital currency
- Visa Direct provides real time¹ payments capability to banks and third party providers so their customers can quickly transfer funds

Product Overview

- Visa Direct allows banks and third party providers to pull and push funds between bank accounts linked to Visa cards²
- Operates behind the scenes to enable consumer transfers; not a consumer-facing product

Scale

- All Visa cardholders in U.S.

Pre-requisite to send or receive

- Sender needs a U.S. card³
- Recipient must have a Visa card³

Cost to consumers

- Fees are determined by banks and third party providers – usually free

Key differentiators

- Streamlined user experience
- Real time¹ payments (within 30 minutes)

Monetization strategy

- Transaction service fees and data processing fees



1. Visa requires U.S. issuers to make funds available to its cardholders within a maximum of 30 minutes 2. Bank service providers debit senders' Demand Deposit Accounts (DDAs) and use Visa Direct to push money to recipients' bank accounts linked to Visa debit card via OCT. Third party providers use Account Funding Transaction (AFT) to pull funds and Original Credit Transaction (OCT) to push funds between bank accounts linked to Visa Debit cards 3. Most service providers support debit card only 4. All brands and logos are the property of their respective owners and the above-mentioned references do not imply product endorsement

MasterCard Send

- MasterCard is a technology company that operates a payments processing network that connects consumers, financial institutions, merchants, governments, and businesses
- MasterCard Send offers real time P2P payments through third party and bank service providers

Product Overview

- MasterCard Send uses Master Money Send, equivalent to Visa Direct and Omney, to gateway transactions across networks
- Provides the rails for instant consumer transfers via their debit cards

Scale

- All MasterCard and non-MasterCard debit cards in the U.S.

Pre-requisite to send or receive

- Sender/recipient needs a U.S. debit card

Cost to consumers

- Fees are determined by banks and third party providers – usually free

Key differentiators

- Provides transfers to all U.S. consumers with MasterCard and non-MasterCard debit cards

Monetization strategy

- Transaction service fees and data processing fees
- Potential gateway fees charged by Omney



Google Wallet



Thank you

Any questions?

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