Payment Evolution:
Tokens, mobile wallets and beyond

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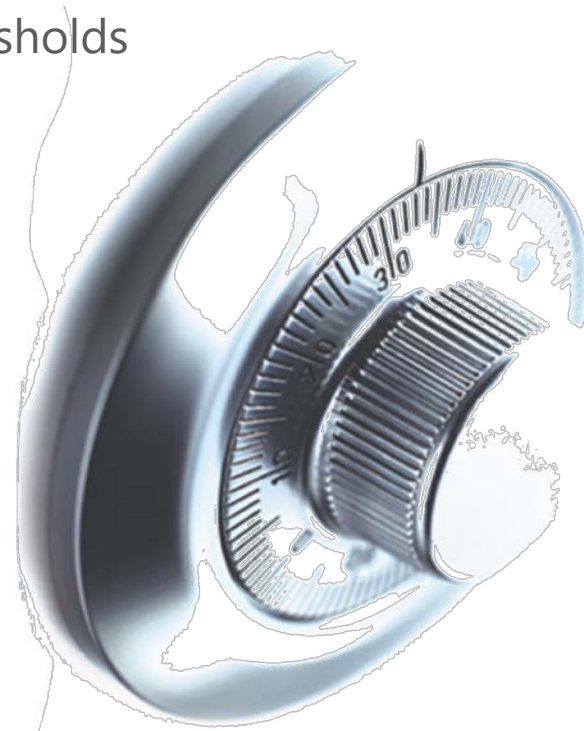
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Explosion of connected devices

~~of connected~~ payment

Last 60 years

3B
cards

44M
merchants

73°

Banks and consumers retain full control

- All transactions authorised online

- Tokens stored on the device/server, instead of real card data

- Additional keys with limited lifetime / transaction thresholds (for cloud-based models)

- In the event of lost & stolen, no negative impact on physical cards

- Data can be changed real-time in the field

- Full flexibility re. verification methods
  (NB: CDCVM is mandated)

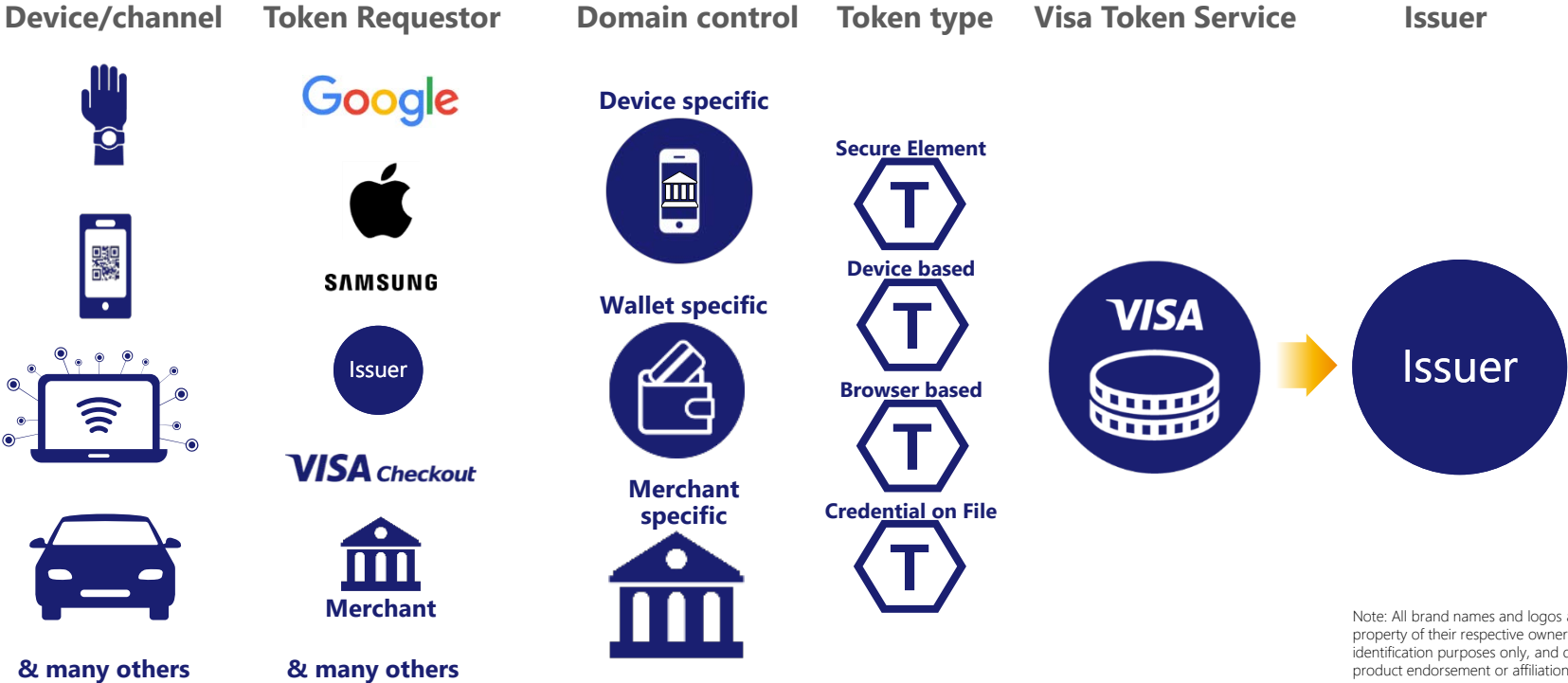- Consumers can turn off NFC function in their devices

Visa Token Service:
One connection, many use cases
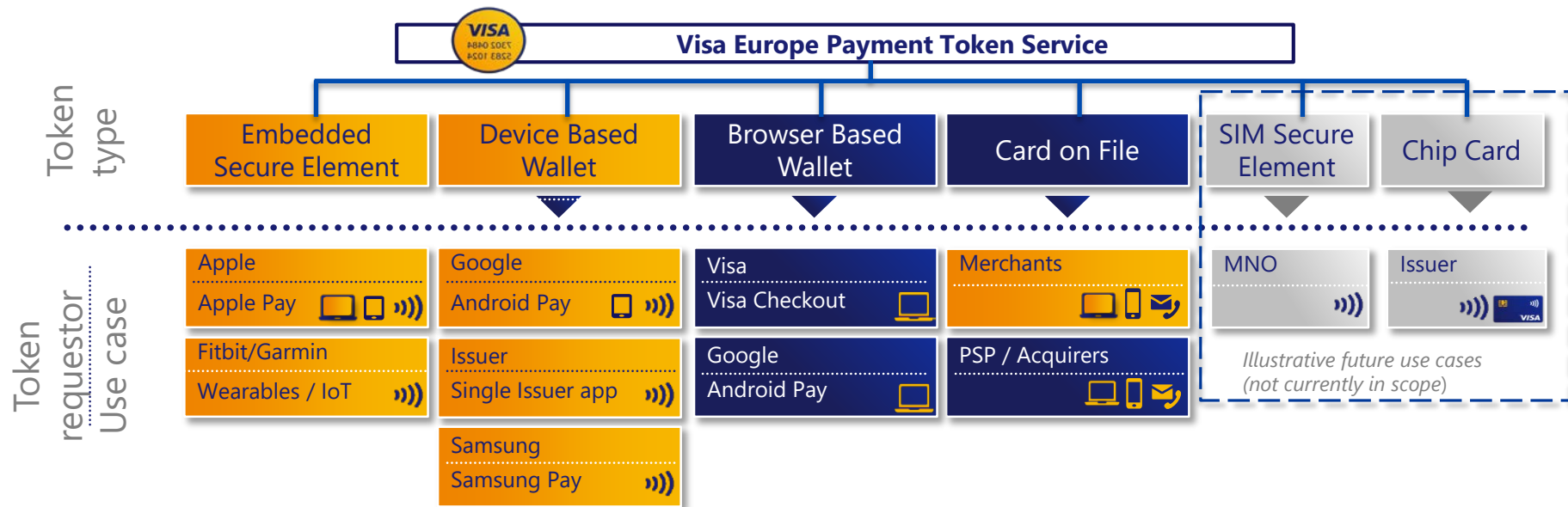
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One connection - many use cases

Device/channel	Token Requestor	Domain control	Token type	Visa Token Service	Issuer

Google

Device specific

Secure Element

Apple

SAMSUNG

Issuer

Wallet specific

Device based

VISA Checkout

Browser based

Merchant specific

Merchant

Credential on File
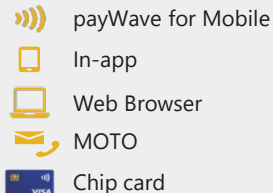
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Issuer

& many others

& many others

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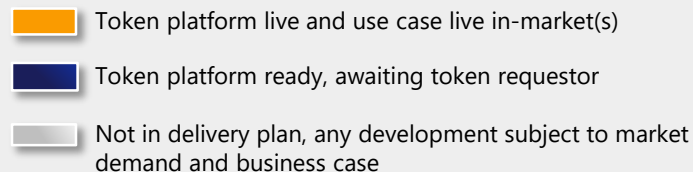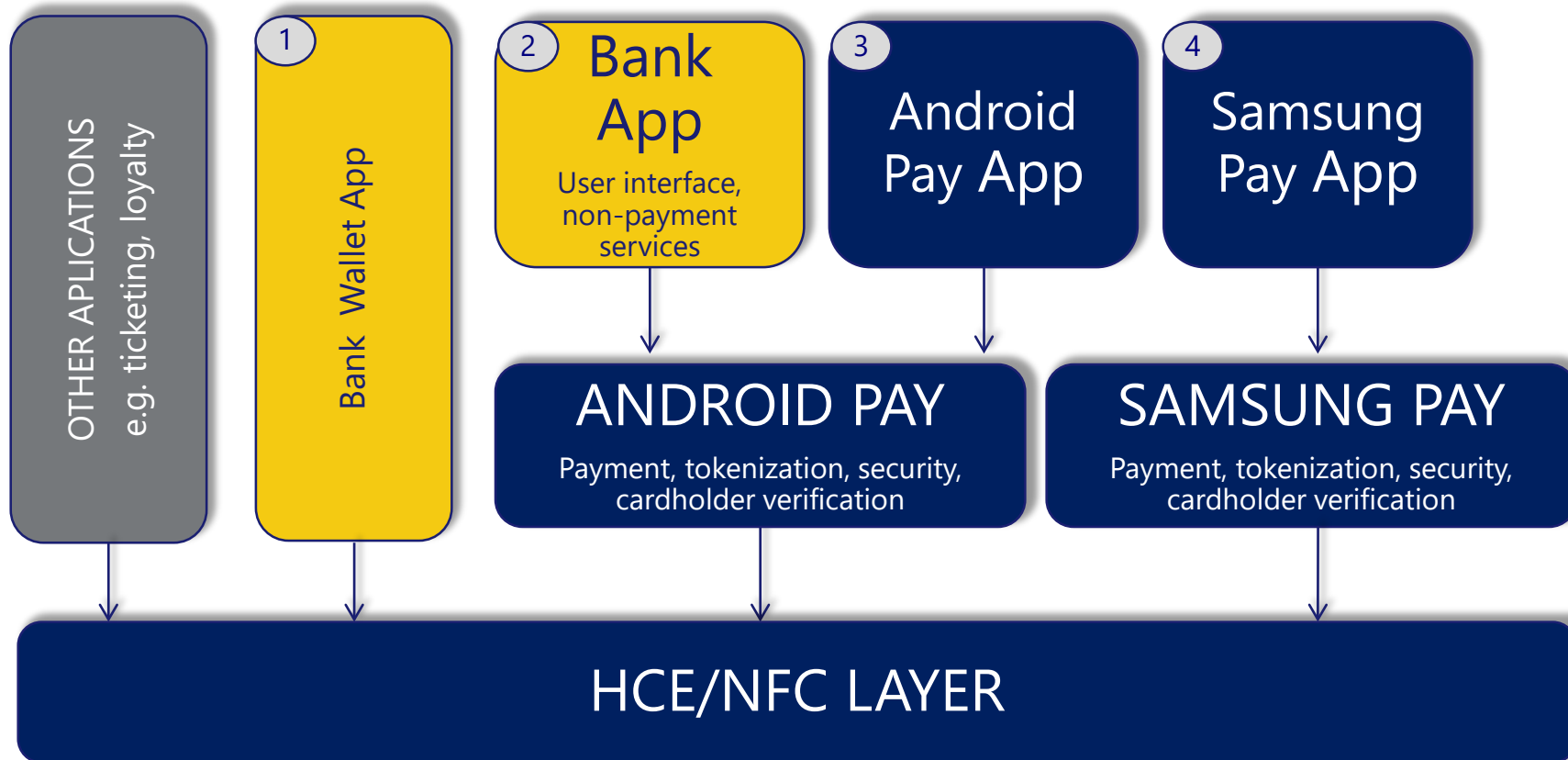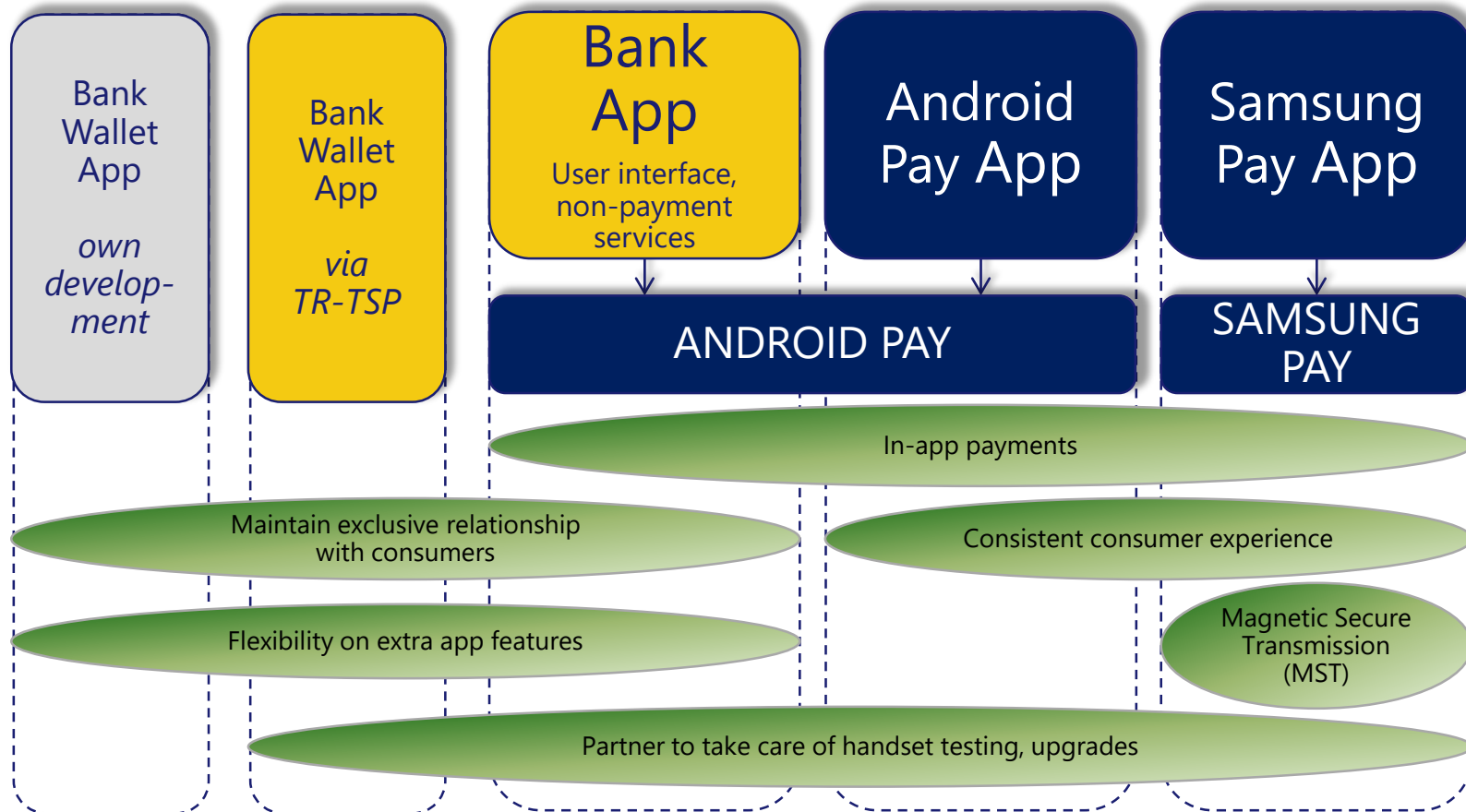
Visa Token Service in Europe

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Visa Europe Payment Token Service

Token type

| Embedded Secure Element | Device Based Wallet | Browser Based Wallet | Card on File | SIM Secure Element | Chip Card |

Token requestor / Use case

Apple	Google	Visa	Merchants	MNO	Issuer
Apple Pay	Android Pay	Visa Checkout			
Fitbit/Garmin	Issuer	Google	PSP / Acquirers		
Wearables / IoT	Single Issuer app	Android Pay			
	Samsung				
	Samsung Pay				

Illustrative future use cases (not currently in scope)

Use Case Symbols

- payWave for Mobile
- In-app
- Web Browser
- MOTO
- Chip card

Legend

- **Orange** — Token platform live and use case live in-market(s)
- **Dark Blue** — Token platform ready, awaiting token requestor
- **Grey** — Not in delivery plan, any development subject to market demand and business case

Issuer options on Android:
X Pays and/or own wallet?

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Options for Issuers on Android

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OTHER APLICATIONS e.g. ticketing, loyalty

(1) Bank Wallet App

(2) **Bank App**
User interface, non-payment services

(3) Android Pay App

(4) Samsung Pay App

ANDROID PAY
Payment, tokenization, security, cardholder verification

SAMSUNG PAY
Payment, tokenization, security, cardholder verification

HCE/NFC LAYER

Options for Issuers on Android

Bank Wallet App *own development*	Bank Wallet App *via TR-TSP*	**Bank App** User interface, non-payment services	Android Pay App	Samsung Pay App
		ANDROID PAY		SAMSUNG PAY

In-app payments

Maintain exclusive relationship with consumers

Consistent consumer experience

Flexibility on extra app features

Magnetic Secure Transmission (MST)

Partner to take care of handset testing, upgrades

Tokens in e-commerce:
The next big opportunity

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Issuer Wallet Samsung Pay

Face-to-Face

U.S. payment volume ($USD billions)

$2,905B

CAGR
('16-20)

$2,479B

Card Not Present

Card-on-File

VISA Checkout

NETFLIX

Card Not Present

$719B

$1,015B

9%

Card Present

$1,759B

$1,890B

2%

2016

2020E

Benefits of Card-on-File (COF) & eCommerce tokenization

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Benefits to Consumers

- No need to call merchants to keep card data accurate
- No need to replace plastic card if merchant is compromised
- Graphic visualization of Visa card allows easy identification (compared to "***1234")

Benefits to Merchants

- Reduce authorization declines
- Reduce threat of data breaches
- Mitigate cross-channel fraud

Benefits to Card Issuers

- Higher authorization rates
- Avoids consumer replacing your card with another payment product if account information becomes stale
- No need to reissue plastic if merchant is compromised
- No impact on e-com if card is stolen

"Connected Card":
How to stay top of wallet

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"Top of Wallet" gives way to TOM, TOP, TOD

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Top of Wallet

- Plastic Cards
- Physical Wallet

Top of Merchant

- Token on File
- Websites
- Apps

Top of Phone

- Third Party Wallet Apps (X Pays)
- Issuer Pay Apps

Top of Device

- Internet of Things
- Wearables
- Consoles
- Cars

Growth rate

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Vision: The "Connected Card"

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Today	Vision
Experience full of friction Multiple touch points required Highly manual process	Holistic customer experience Seamless/frictionless process via mobile phone

Today:

Applies for card and receives in mail 5–7 business day later

Calls 1-800 number to activate card

Goes online to manually sign up for **VISA** Checkout

Goes back online or in app to check statement

Receives call to report fraudulent activity

Has to manually update all cards on file

Downloads merchant app and adds card

Signs up for each digital wallet separately
 Pay pay
SAMSUNG pay

Vision:

Upon card activation, enroll into various digital solutions

Shop in-store:
 Pay
 pay   SAMSUNG pay

Shop online:
VISA Checkout

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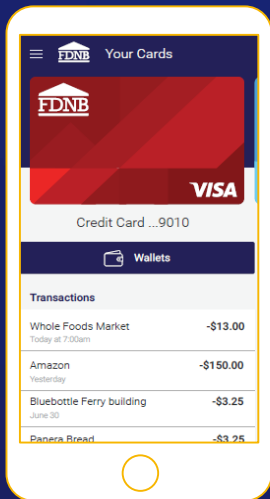
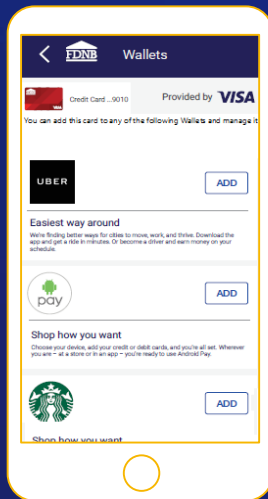# Enable customers to *"Push"* tokens to merchants

Issuers build digital relationship with cardholders, merchant gets life cycle managed credential for continuous payment
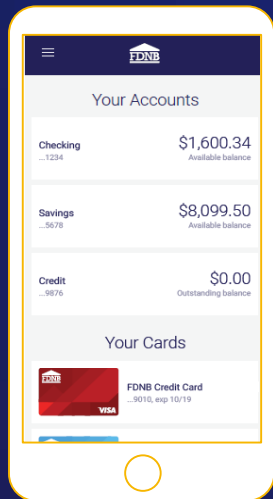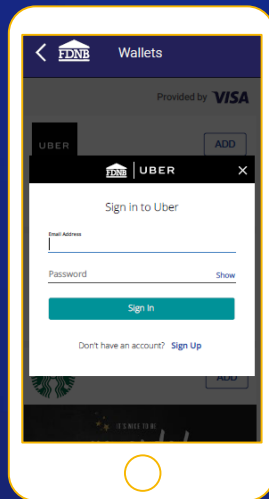

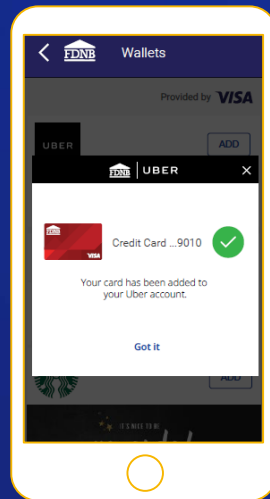Customer logs into Issuer application and chooses a card to see the details.

Customer sees option to push the card to COF wallets.

Visa displays the WPs that the card can be pushed to. Customer chooses to add their card to Uber.

Customer sees a lightbox where the customer is prompted to login using Uber wallet credentials.

Upon successful WP authentication, Visa shares the encrypted Card data with Uber. Uber provisions the token using the encrypted data. Customer sees confirmation.
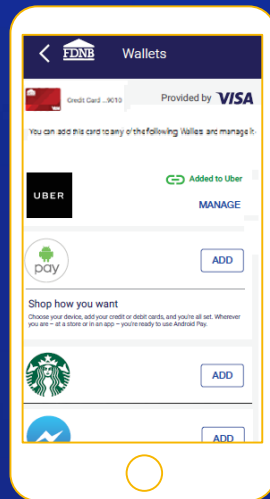
Customer now sees on the Issuer app, that their card was successfully added to Uber.

Internet of Things (IoT):
Wearables as the first step
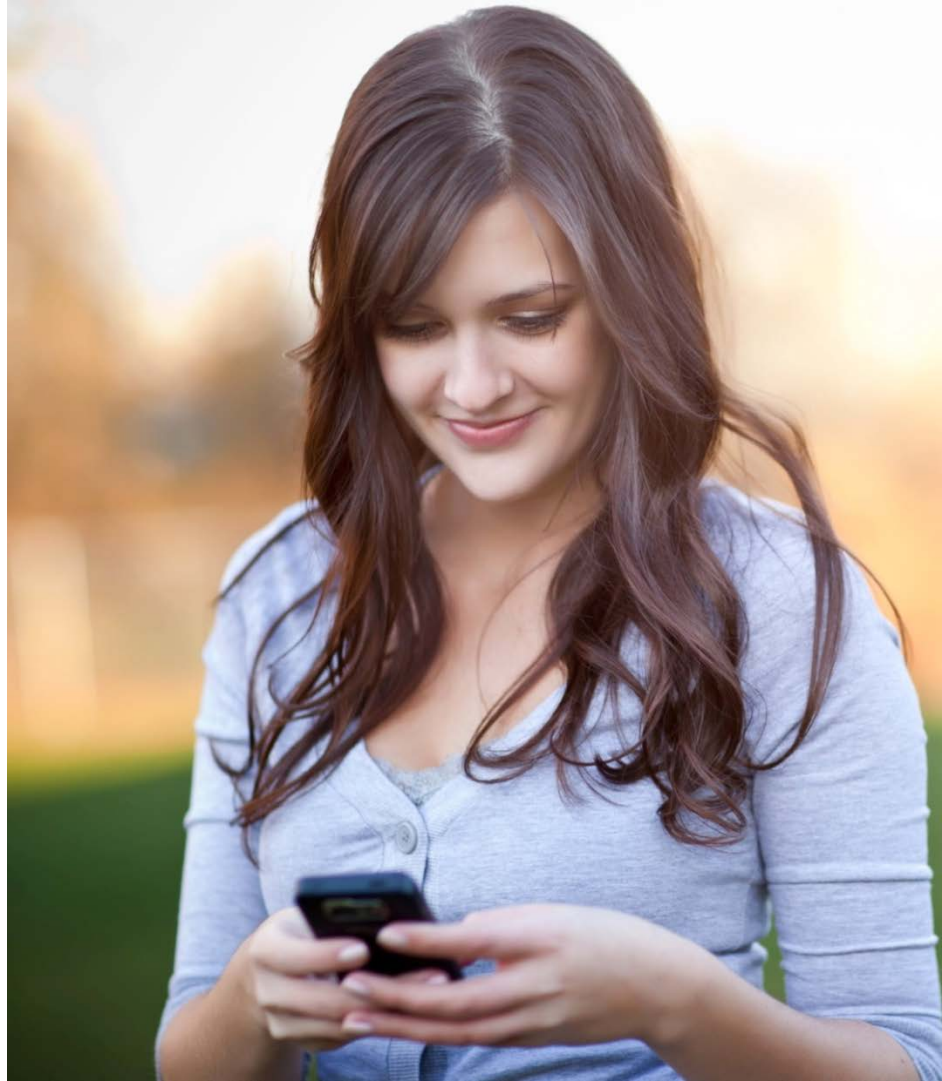
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New smart wearables from Fitbit and Garmin

Key take-aways

- Enter the **mobile space**, to keep your cards top-of-wallet

- Enable **Visa tokenization**, to open up a universe of different use cases

- Explore **Wearables** to gain experience in IoT and offer a payment solution to iOS customers

- Do proper **life cycle management** to leverage huge e-com opportunity

- Adjust **backend processes** to allow decoupling of physical card and tokens

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