

System Frameworks

#WWDC15

Wallet—The Home for Apple Pay and More

Session 701

Danvin Ruangchan iOS Apps & Frameworks



What We've Been Up To

A Review of Wallet Features

What is a Pass?

PassKit

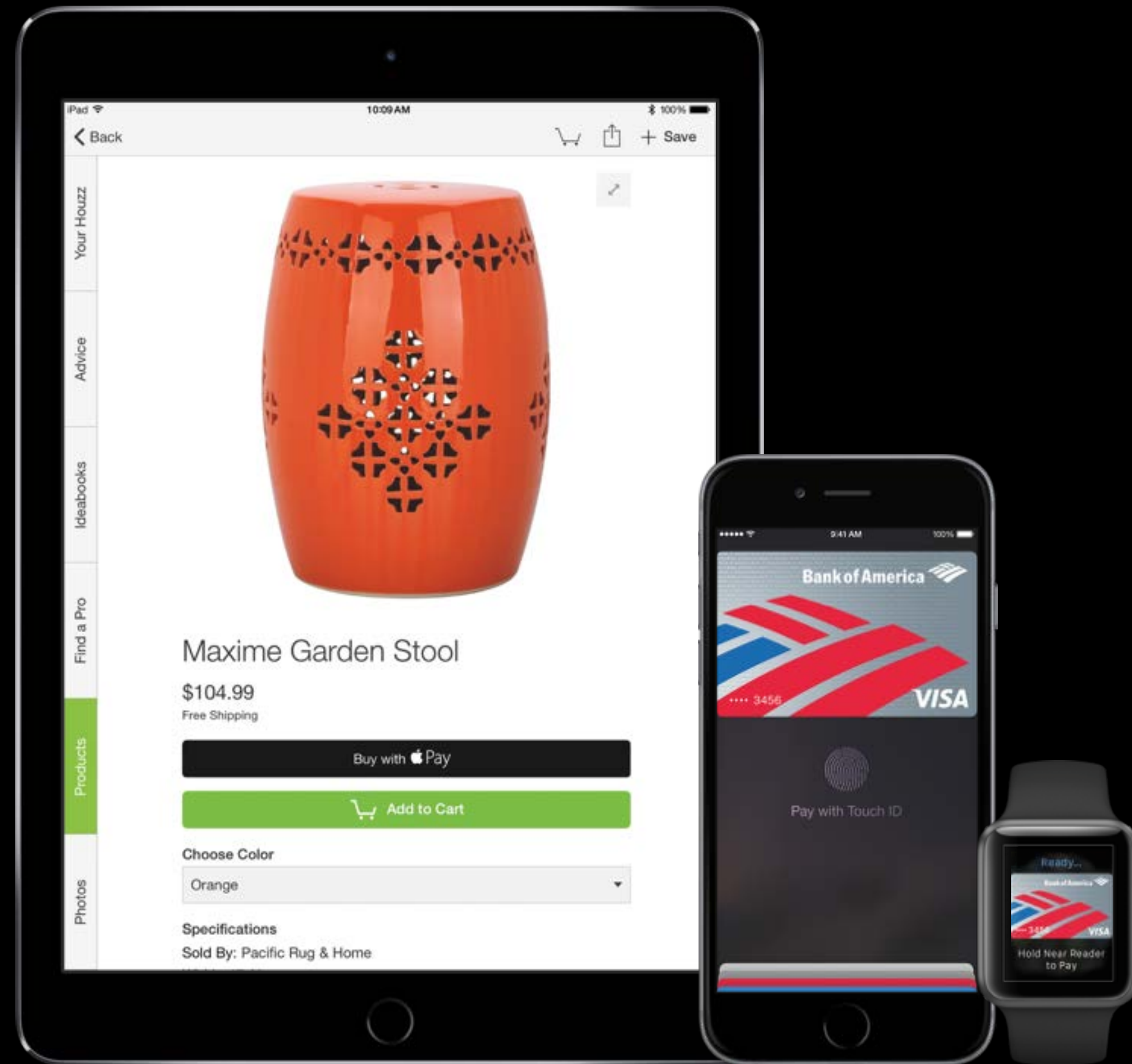
Apple Pay

And More...

What Have We Been Up to...



What Have We Been Up to...



Wallet

How did we get here?



Office DEPOT OfficeMax

15% off
School Supplies



EXPIRES
Aug 27, 2015



123456



7:08PM
June 10



COMERICA PARK
Cubs at Tigers

SECTION
324

ROW
C

SEAT
13



ZXC7-MLHDD3F9

Apple iTunes

BALANCE
\$50.19



APPLE ID
b*****@icloud.com



Terms apply, see pass detail.

UNITED

GATE
147

NEWARK
EWR



STOCKHOLM
ARN

BOARDS
4:15 PM

FLIGHT
UA 68

SEAT
38G

SEQ
41

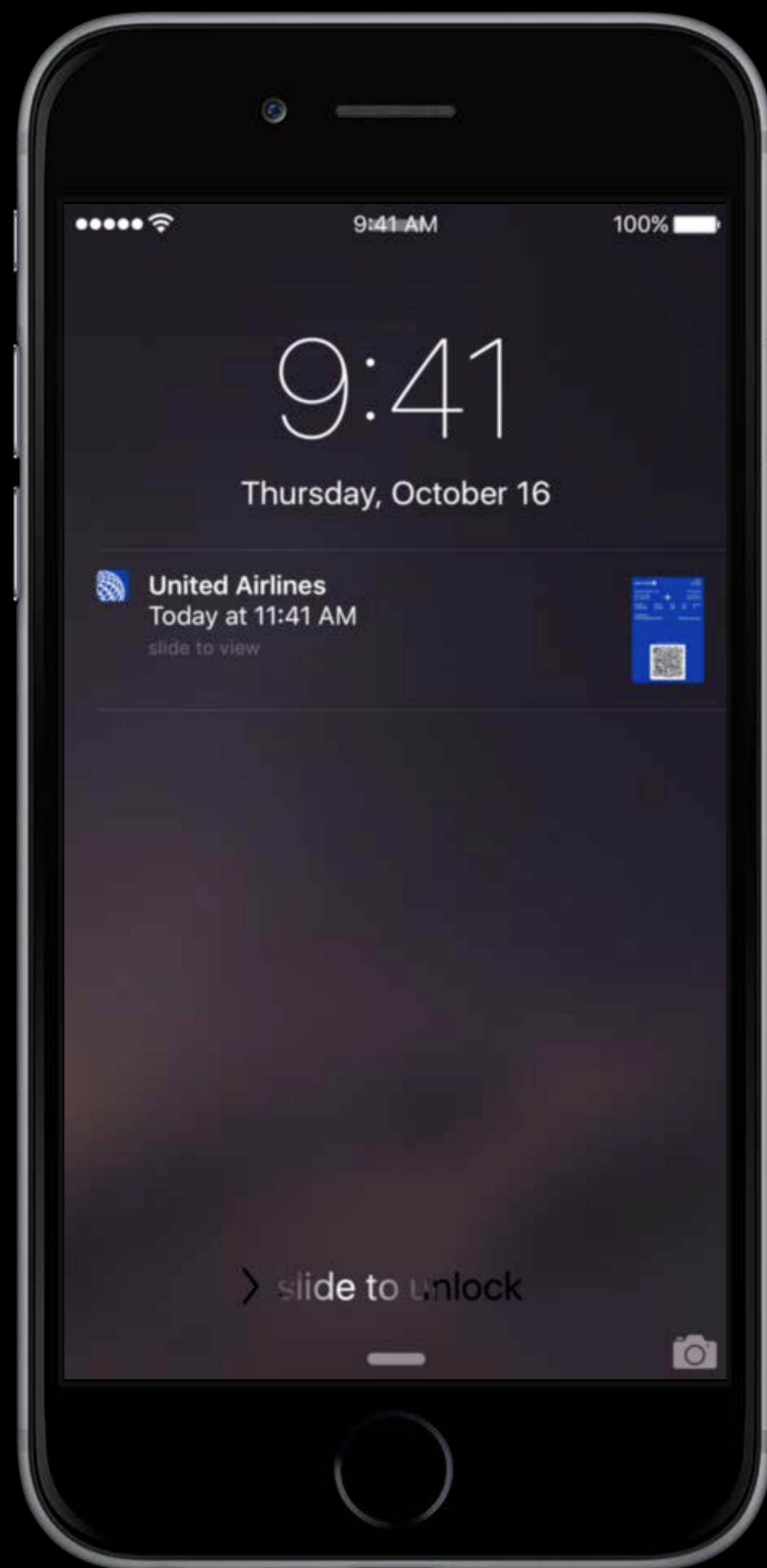
GROUP
5

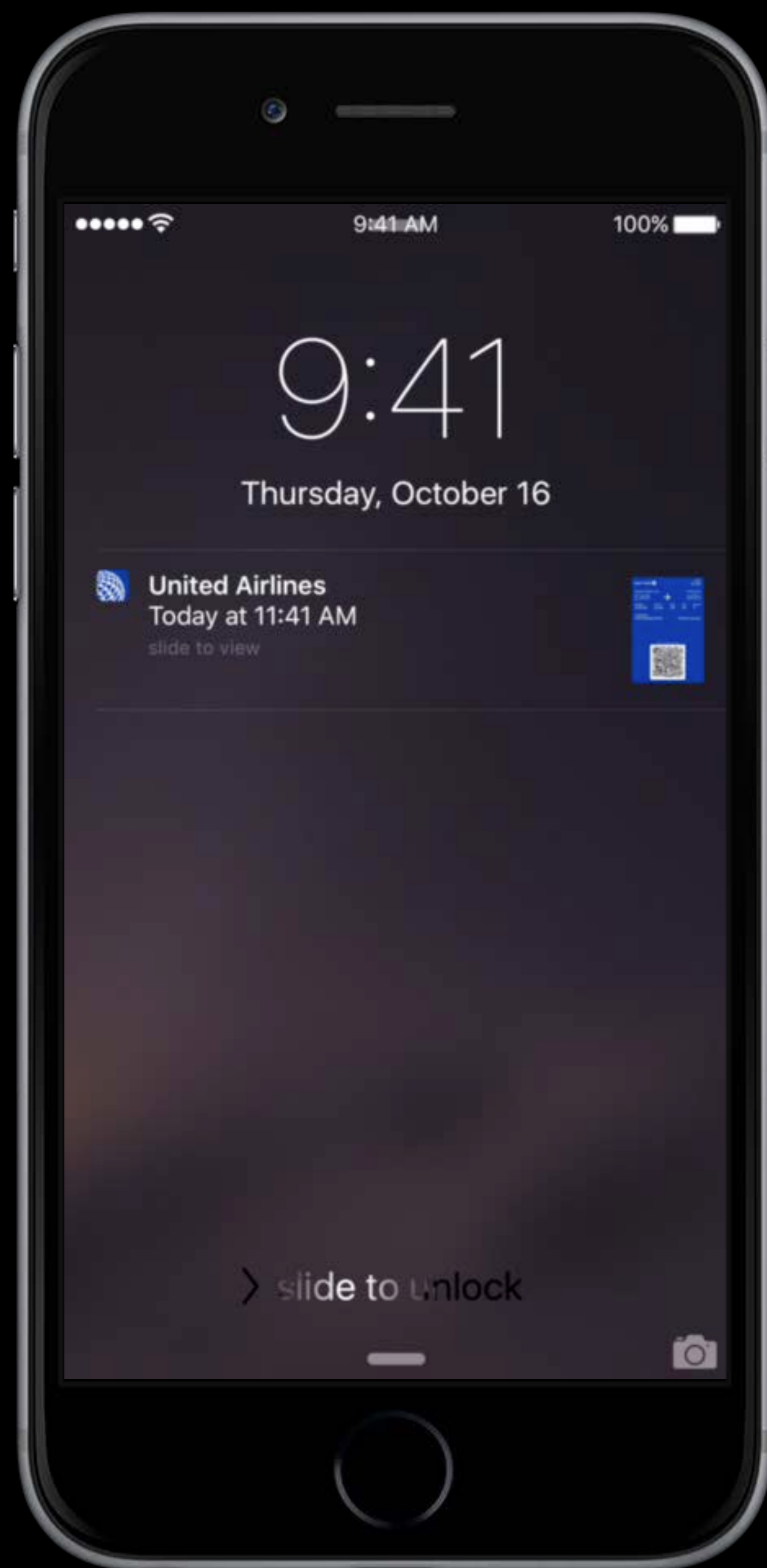
PASSENGER
Appleseed/Johnny

A STAR ALLIANCE MEMBER









UNITED 

GATE
147

NEWARK

EWR



STOCKHOLM

ARN

BOARDS
4:15 PM

FLIGHT
UA 68

SEAT
38G

SEQ
41

GROUP
5

PASSENGER

Appleseed/Johnny

A STAR ALLIANCE MEMBER 



UNITED 

GATE
147

NEWARK

EWR



STOCKHOLM

ARN

BOARDS
4:15 PM

FLIGHT
UA 68

SEAT
38G

SEQ
41

GROUP
5

PASSENGER
Appleseed/Johnny

A STAR ALLIANCE MEMBER 



Logo

UNITED



GATE
147

NEWARK
EWR



STOCKHOLM
ARN

BOARDS
4:15 PM

FLIGHT
UA 68

SEAT
38G

SEQ
41

GROUP
5

PASSENGER
Appleseed/Johnny

A STAR ALLIANCE MEMBER









UNITED 

GATE
147

NEWARK

EWR



STOCKHOLM

ARN

BOARDS
4:15 PM

FLIGHT
UA 68

SEAT
38G

SEQ
41

GROUP
5

PASSENGER

Appleseed/Johnny

A STAR ALLIANCE MEMBER 



Header Fields

UNITED

GATE
147

NEWARK
EWR



STOCKHOLM
ARN

BOARDS
4:15 PM

FLIGHT
UA 68

SEAT
38G

SEQ
41

GROUP
5

PASSENGER
Appleseed/Johnny

A STAR ALLIANCE MEMBER 





UNITED 

GATE
147

NEWARK

EWR



STOCKHOLM

ARN

BOARDS
4:15 PM

FLIGHT
UA 68

SEAT
38G

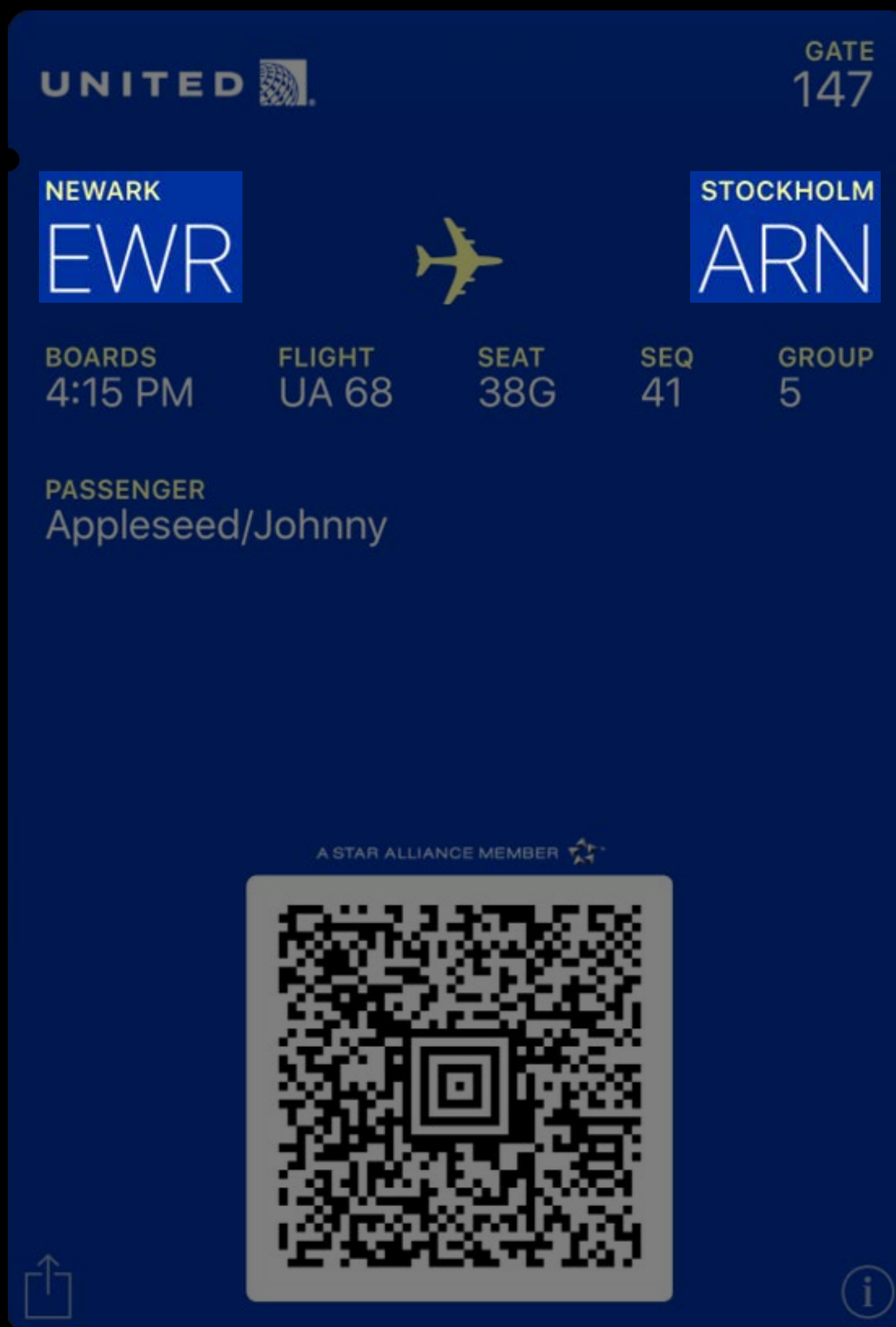
SEQ
41

GROUP
5

PASSENGER
Appleseed/Johnny

A STAR ALLIANCE MEMBER 





Primary Fields

UNITED 

GATE
147

NEWARK

EWR



STOCKHOLM

ARN

BOARDS
4:15 PM

FLIGHT
UA 68

SEAT
38G

SEQ
41

GROUP
5

PASSENGER
Appleseed/Johnny

A STAR ALLIANCE MEMBER 



UNITED



GATE
147

NEWARK
EWR



STOCKHOLM
ARN

BOARDS
4:15 PM

FLIGHT
UA 68

SEAT
38G

SEQ
41

GROUP
5

PASSENGER
Appleseed/Johnny

A STAR ALLIANCE MEMBER









Secondary and Auxiliary Fields

UNITED 

GATE
147

NEWARK

EWR



STOCKHOLM

ARN

BOARDS
4:15 PM

FLIGHT
UA 68

SEAT
38G

SEQ
41

GROUP
5

PASSENGER
Appleseed/Johnny

A STAR ALLIANCE MEMBER 



UNITED



GATE
147

NEWARK
EWR



STOCKHOLM
ARN

BOARDS
4:15 PM

FLIGHT
UA 68

SEAT
38G

SEQ
41

GROUP
5

PASSENGER
Appleseed/Johnny

A STAR ALLIANCE MEMBER









Barcode

Delete

updated 3 Hours Ago

Done



United Airlines
United Airlines
★★★★☆
FREE — On the App Store

[View](#)

Automatic Updates



Suggest Pass on Lock Screen



Show based on time or location.

CONFIRMATION
A1B2C3

CABIN
UNITED ECONOMY (XN)

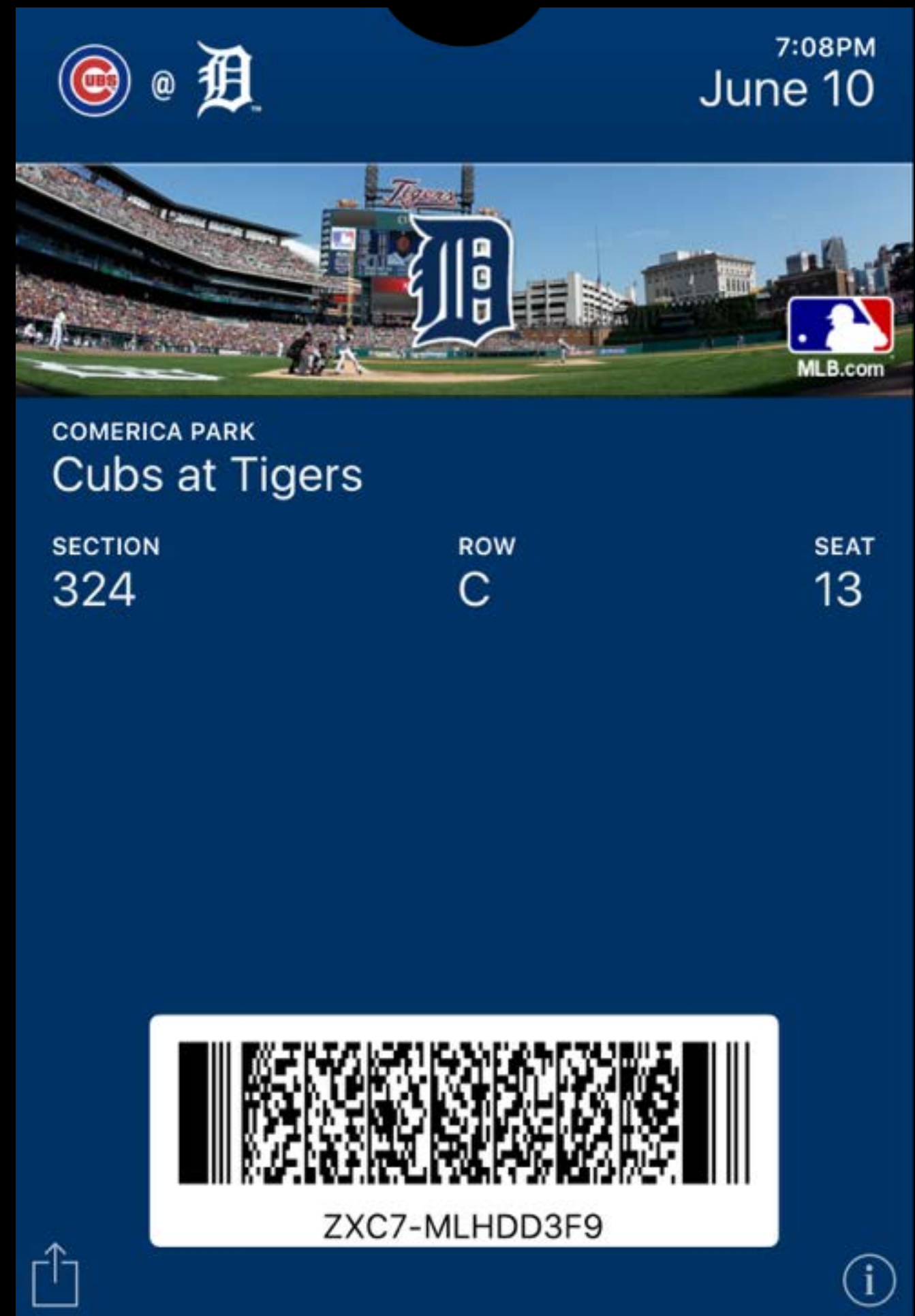
FLIGHT DATE
TUE. JUN. 9, 2015

DEPARTS
5:15 PM

What Makes a Pass, a Pass



What Makes a Pass, a Pass

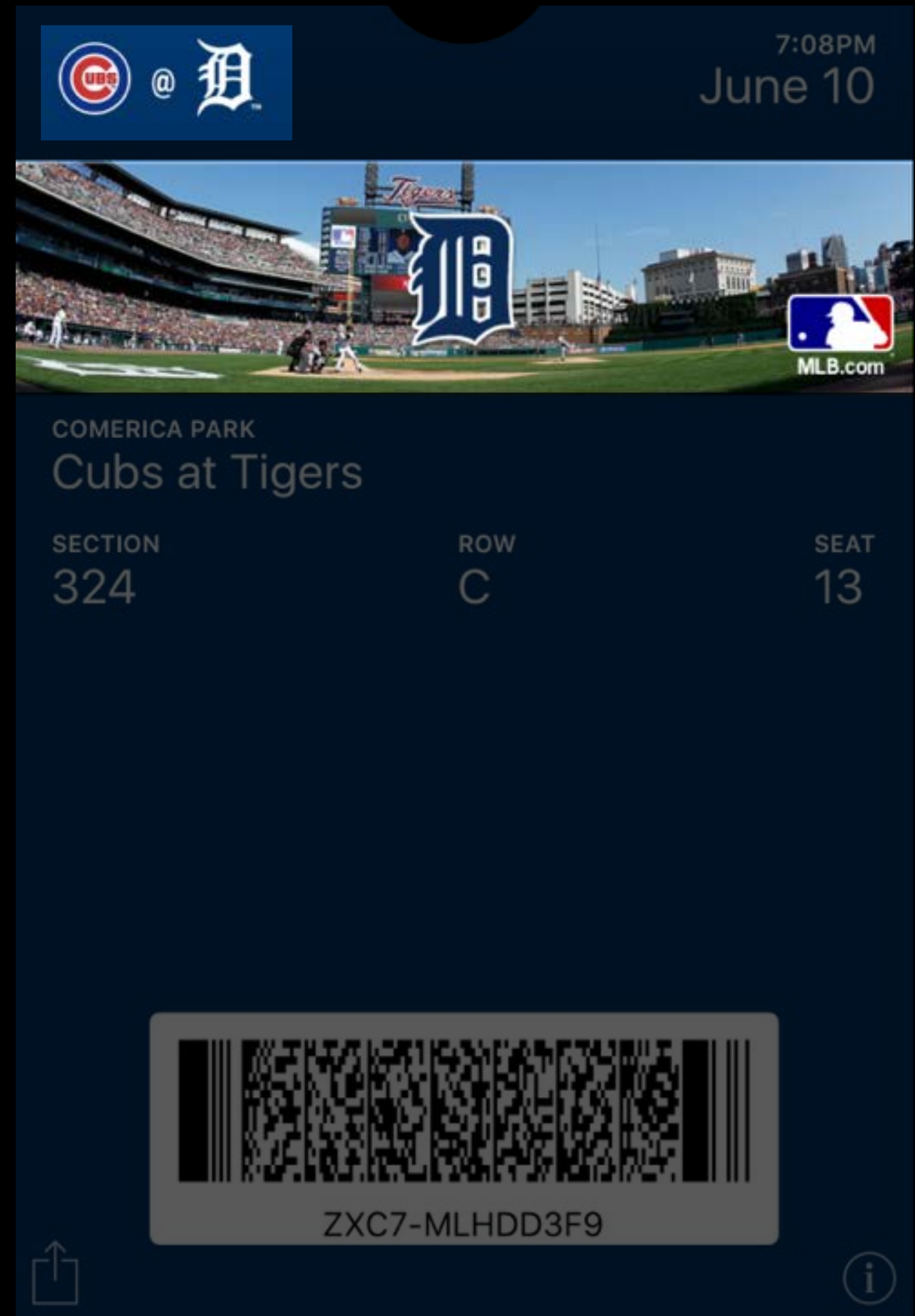


pass.json

What Makes a Pass, a Pass

logo.png

strip.png



pass.json

What Makes a Pass

Pass.pkpass

- pass.json
- fr.lproj
 - └─ pass.strings
- de.lproj
 - └─ pass.strings
- icon.png
- icon@2x.png
- logo.png
- logo@2x.png
- strip.png
- strip@2x.png
- manifest.json
- signature

What Makes a Pass, Your Pass

Team Identifier

- 10-character string found on the developer portal
- Used in entitling apps to access passes through PassKit

```
"teamIdentifier" : "DK9N2M2GK6"
```

What Makes a Pass, Your Pass

Pass Type Identifier

- Defines a class or category of passes
- Registered on the developer portal
- Used for grouping

```
"passTypeIdentifier" : "pass.com.mycompany.storecard"
```

What Makes a Pass, Your Pass

Serial Number

- Unique for every pass
- Chosen by you and opaque to Wallet
- Combined with Pass Type Identifier to determine global uniqueness

`"serialNumber" : "B5BD0271-B90B-400D-8344-36A789714CC8"`

Relevancy



Date



Location



Beacons

Relevancy

```
"locations" : [  
  {  
    "longitude" : -118.2400,  
    "latitude" : 34.0736,  
    "relevantText": "My Store - Los Angeles"  
  },  
  {  
    "longitude" : -122.03118,  
    "latitude" : 37.33182,  
    "relevantText": "My Store - Bay Area"  
  }  
],  
  
"relevantDate" : "2015-06-09T13:00-18:00"
```

Relevancy

```
"beacons": [  
  {  
    "proximityUUID":"F8F589E9-C07E-58B0-AEAB-A36BE4D48FAC",  
    "relevantText":"You're near my store",  
    "name" : "My Store"  
  },  
]
```

Keep Passes Up to Date



Apple Push Service

passTypeID

Get Pass Updates

webService

Updated Passes

.pkpass



Your Server

PKPassLibrary

- Query user's passes
- Access gated by entitlements

PKPassLibrary

```
class func isPassLibraryAvailable() -> Bool
```

```
func passes() -> [PKPass]
```

[illegible]

PKPassLibrary

```
class func isPassLibraryAvailable() -> Bool
```

```
func passes() -> [PKPass]
```

[illegible]

PKPassLibrary

```
class func isPassLibraryAvailable() -> Bool
```

```
func passes() -> [PKPass]
```

[illegible]

PKPassLibrary

```
class func isPassLibraryAvailable() -> Bool
```

```
func passes() -> [PKPass]
```

[illegible]

PKPassLibrary

```
func passesOfType(passType: PKPassType) -> [PKPass]
```

PKPassLibrary

```
func passesOfType(passType: PKPassType) -> [PKPass]
```

```
passLibrary.passesOfType(.Barcode)
```

```
passLibrary.passesOfType(.Payment)
```

```
passLibrary.passesOfType(.Any)
```

Distributing Passes



Web

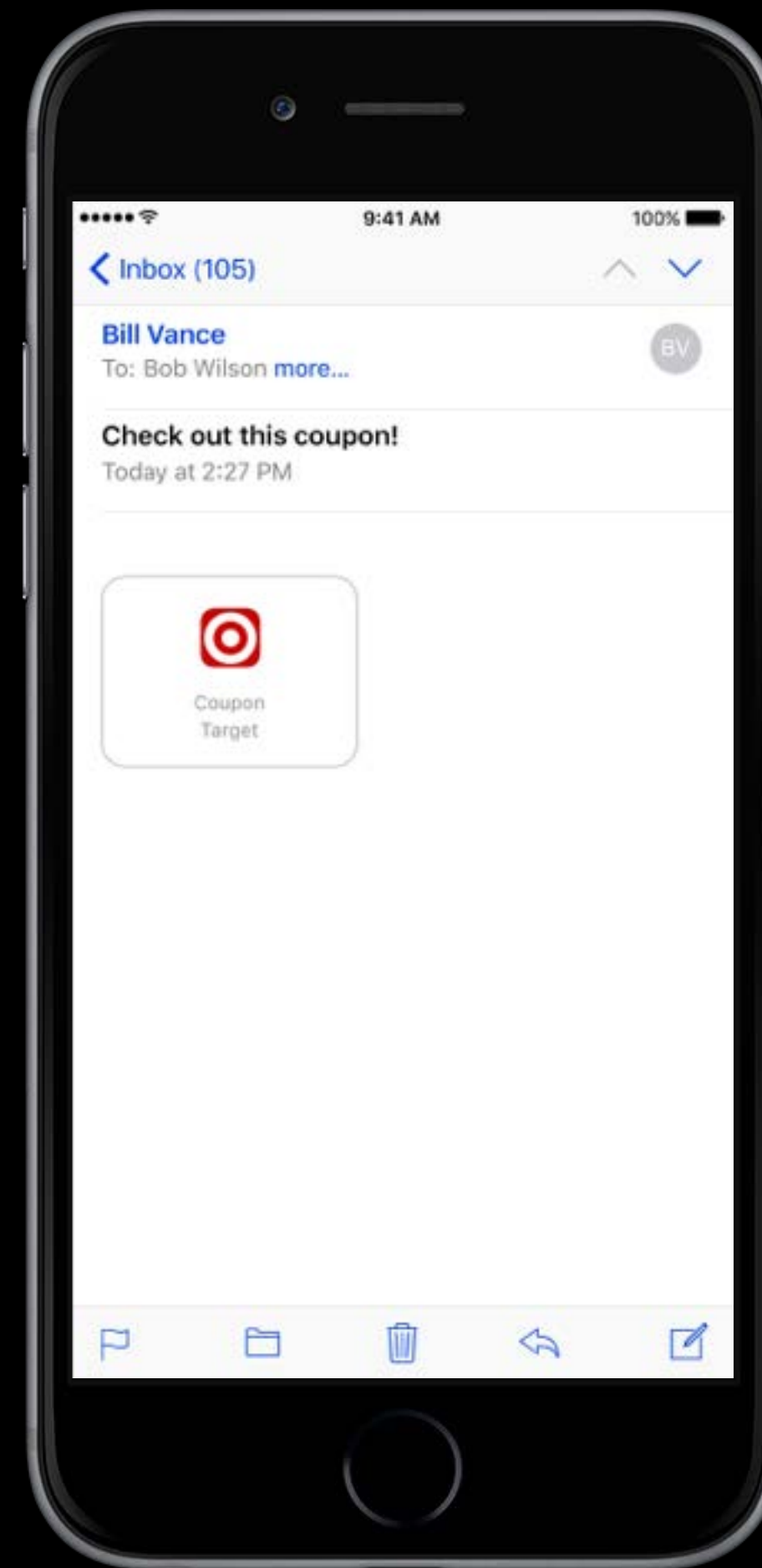


Email



App

Distributing Passes



Distributing Passes



Add to
Passbook

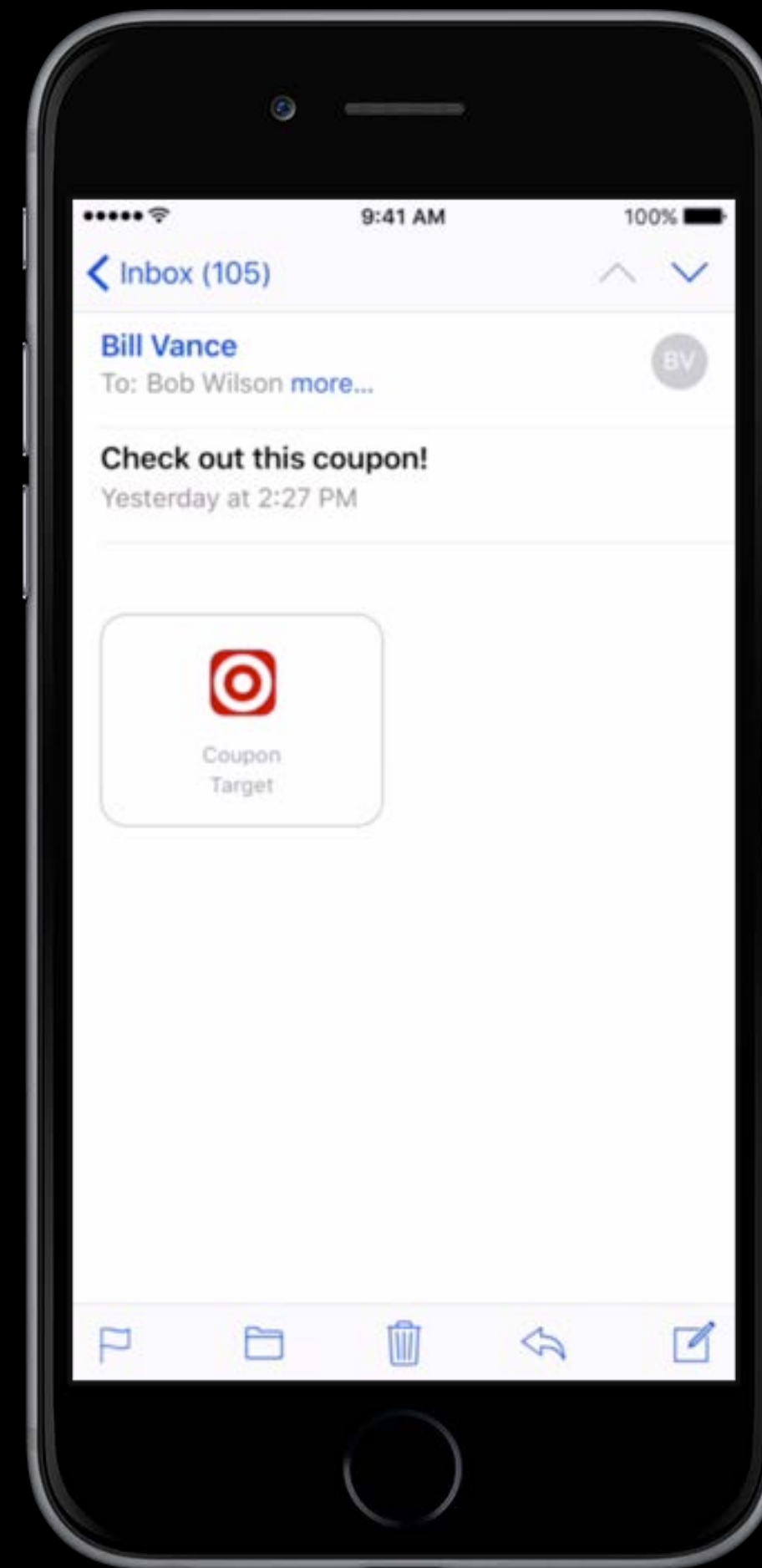
PKPassLibrary

```
func addPasses(passes: [PKPass],  
withCompletionHandler completion: ((PKPassLibraryAddPassesStatus) -> Void)?)
```

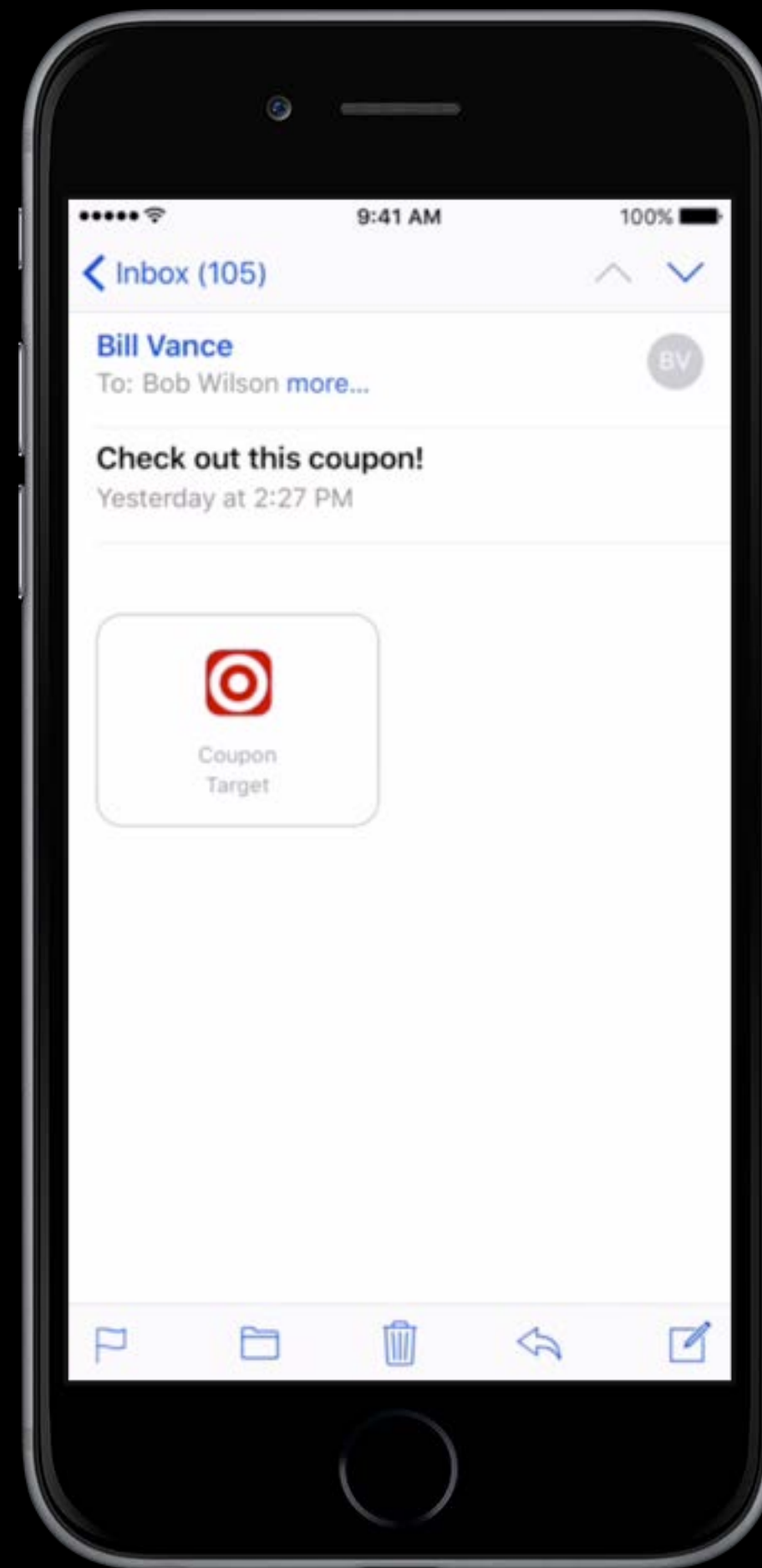
PKPassLibrary

```
func addPasses(passes: [PKPass],  
withCompletionHandler completion: ((PKPassLibraryAddPassesStatus) -> Void)?)
```

PKAddPassesViewController



PKAddPassesViewController



PKAddPassesViewController

```
class func canAddPasses() -> Bool
```

```
init!(pass pass: PKPass)
```

```
init!(passes passes: [PKPass])
```

PKAddPassesViewController

```
class func canAddPasses() -> Bool
```

```
init!(pass pass: PKPass)
```

```
init!(passes passes: [PKPass])
```

PKAddPassesViewController

```
class func canAddPasses() -> Bool
```

```
init!(pass pass: PKPass)
```

```
init!(passes passes: [PKPass])
```

PKAddPassesViewController

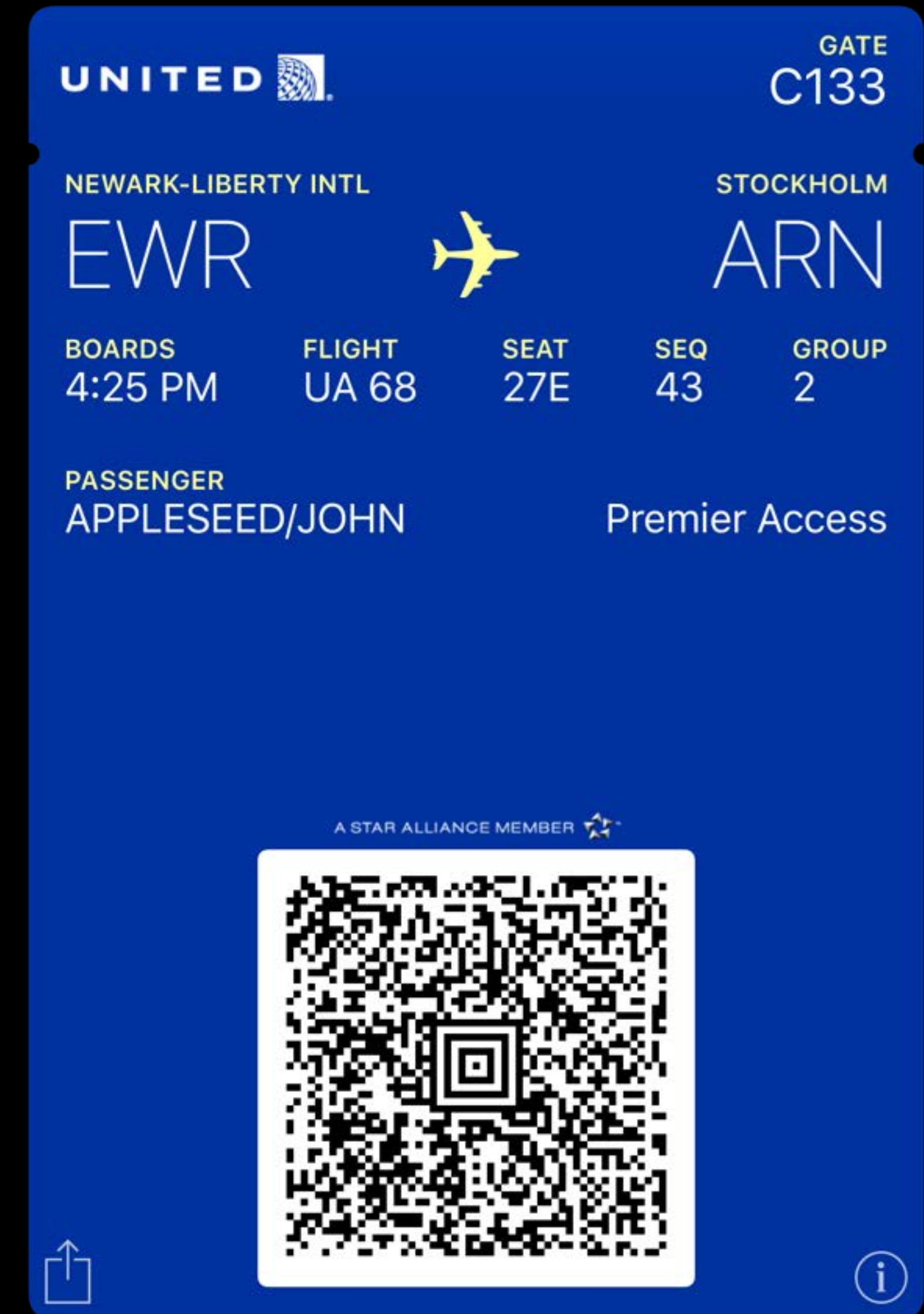
```
class func canAddPasses() -> Bool
```

```
init!(pass pass: PKPass)
```

```
init!(passes passes: [PKPass])
```

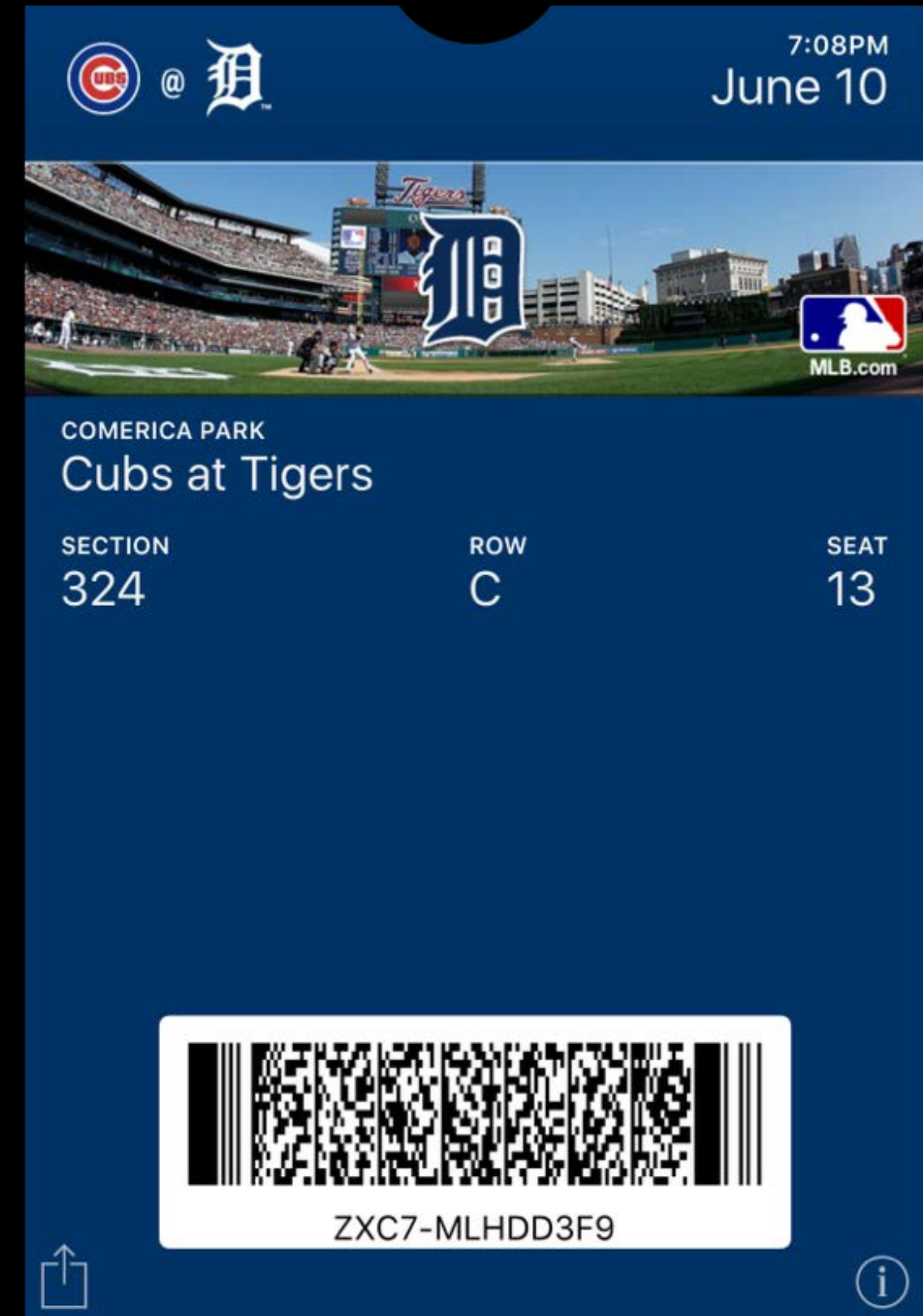
Engaging Passes

- Relevancy
- Update
- Images
- Formatting



Engaging Passes

- Relevancy
- Update
- Images
- Formatting



Engaging Passes

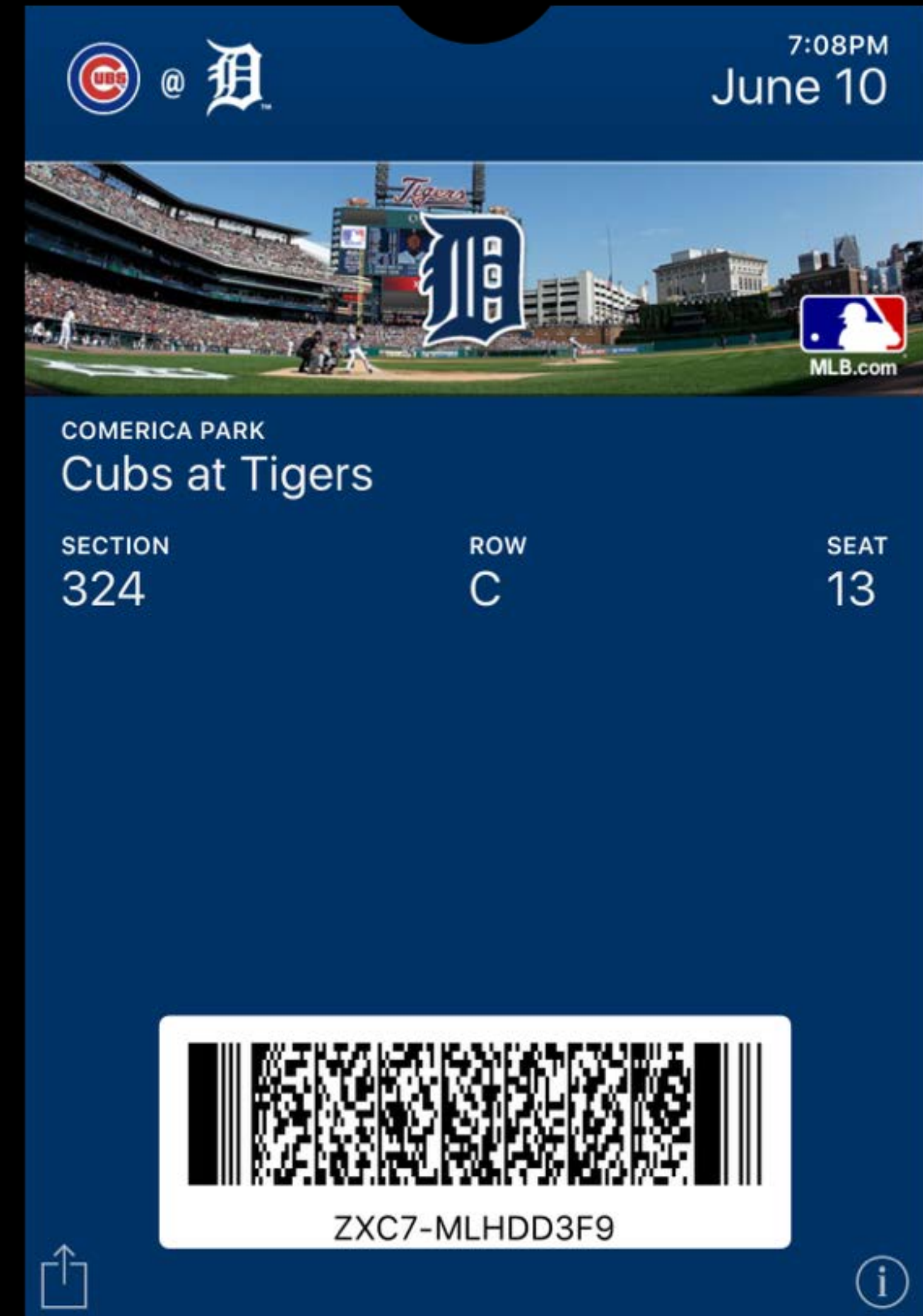
- Relevancy
- Update
- Images
- Formatting

Strip Image →



Engaging Passes

- Relevancy
- Update
- Images
- Formatting

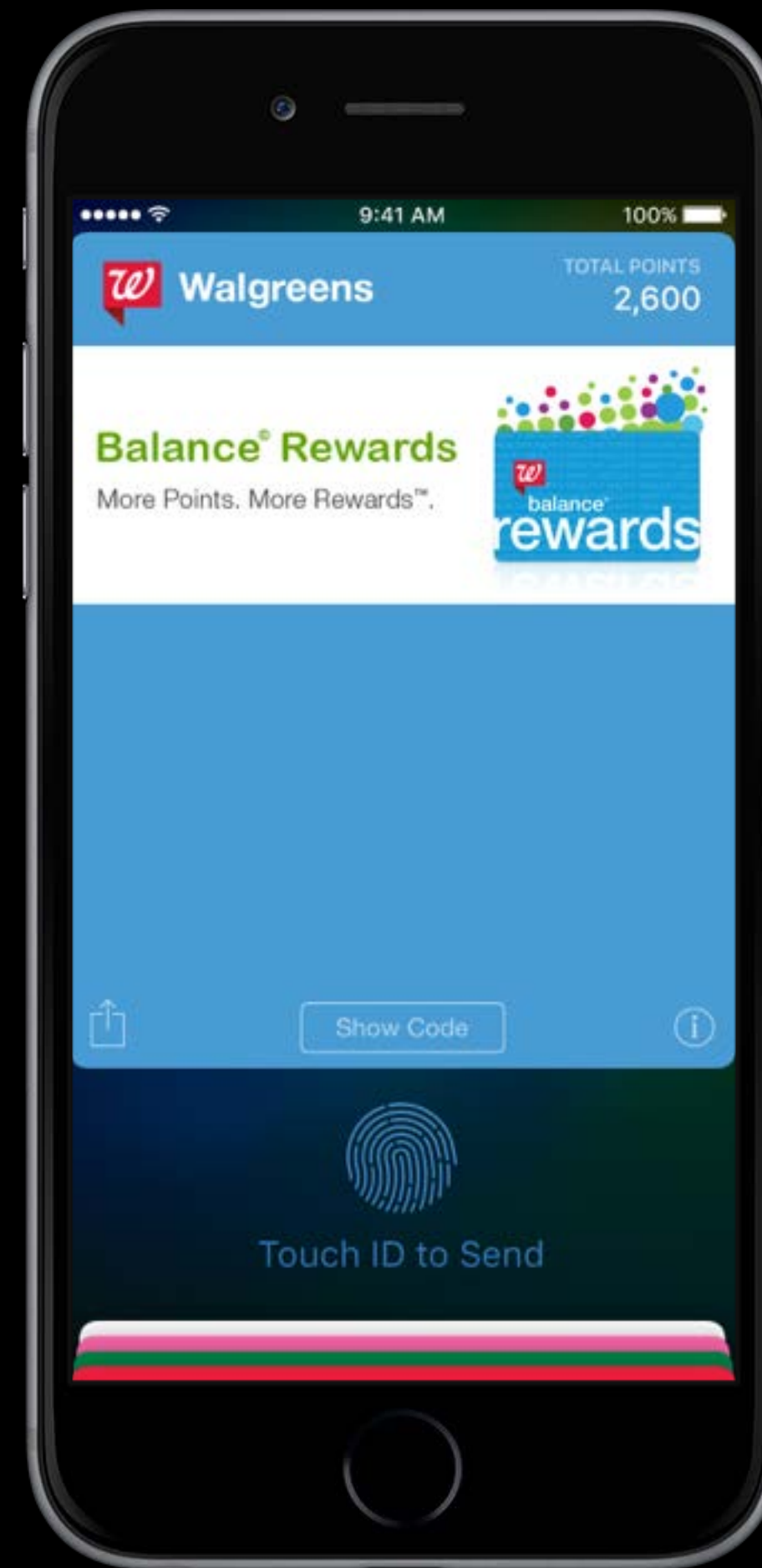


Wallet

Where do we go from here?

Passes That Work with Apple Pay

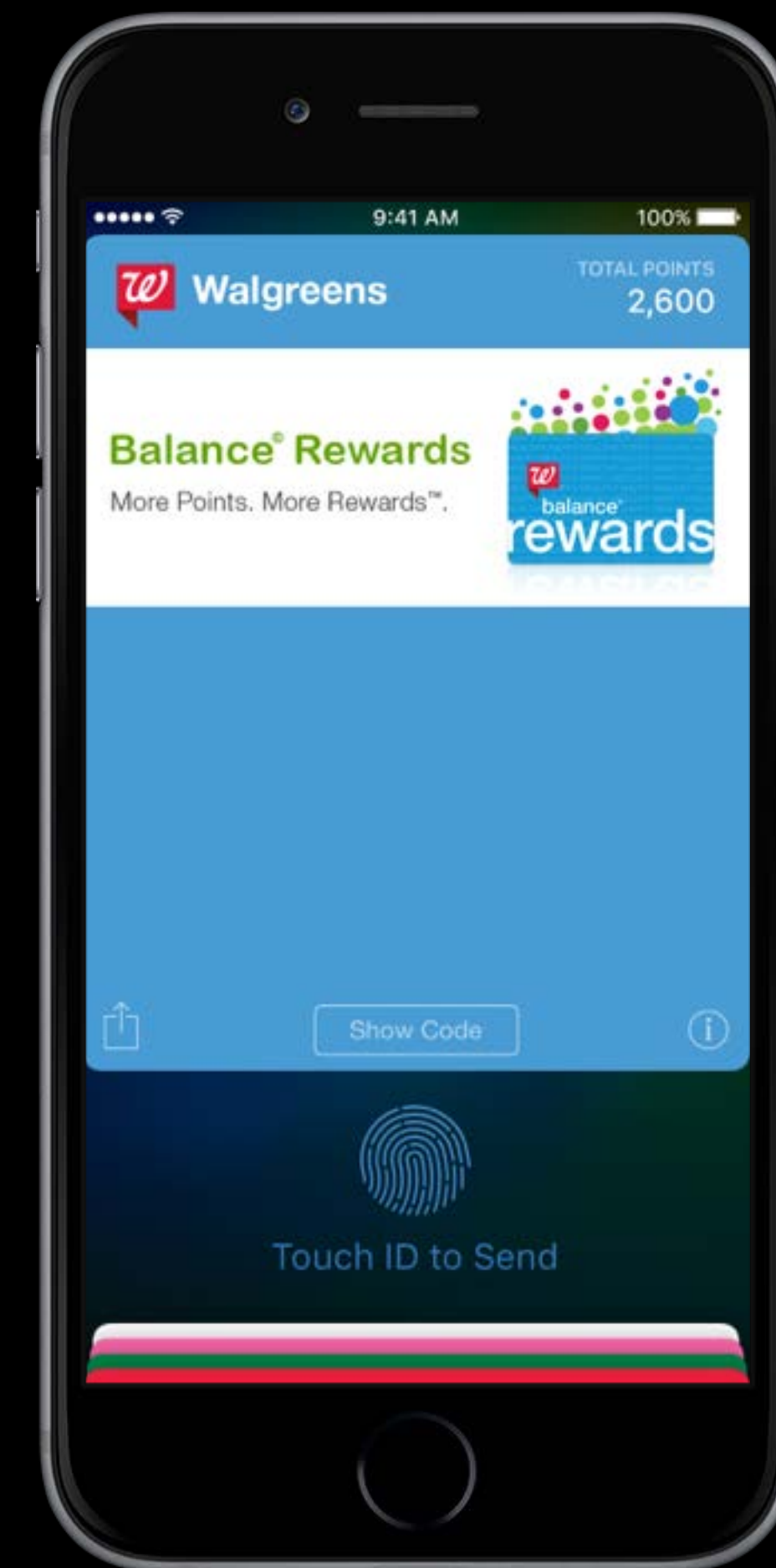
NEW



Passes That Work with Apple Pay

NEW

- Contactless
- Value Added Services Protocol
- Working with terminal manufacturers



pass.json

NEW

```
"nfc" : {  
  "message" : "4444678966661234",  
  "encryptionPublicKey" : "MDkwEwYHkoZIZj0CAQYIKoZIZj0DAQcDIgACigjq  
+QYC17m3i9u08uKc8mLpaS1UJ0EaCFvMedkXsuA=",  
},
```

Apple Pay

NEW



Why Encourage Apple Pay Cards?

NEW

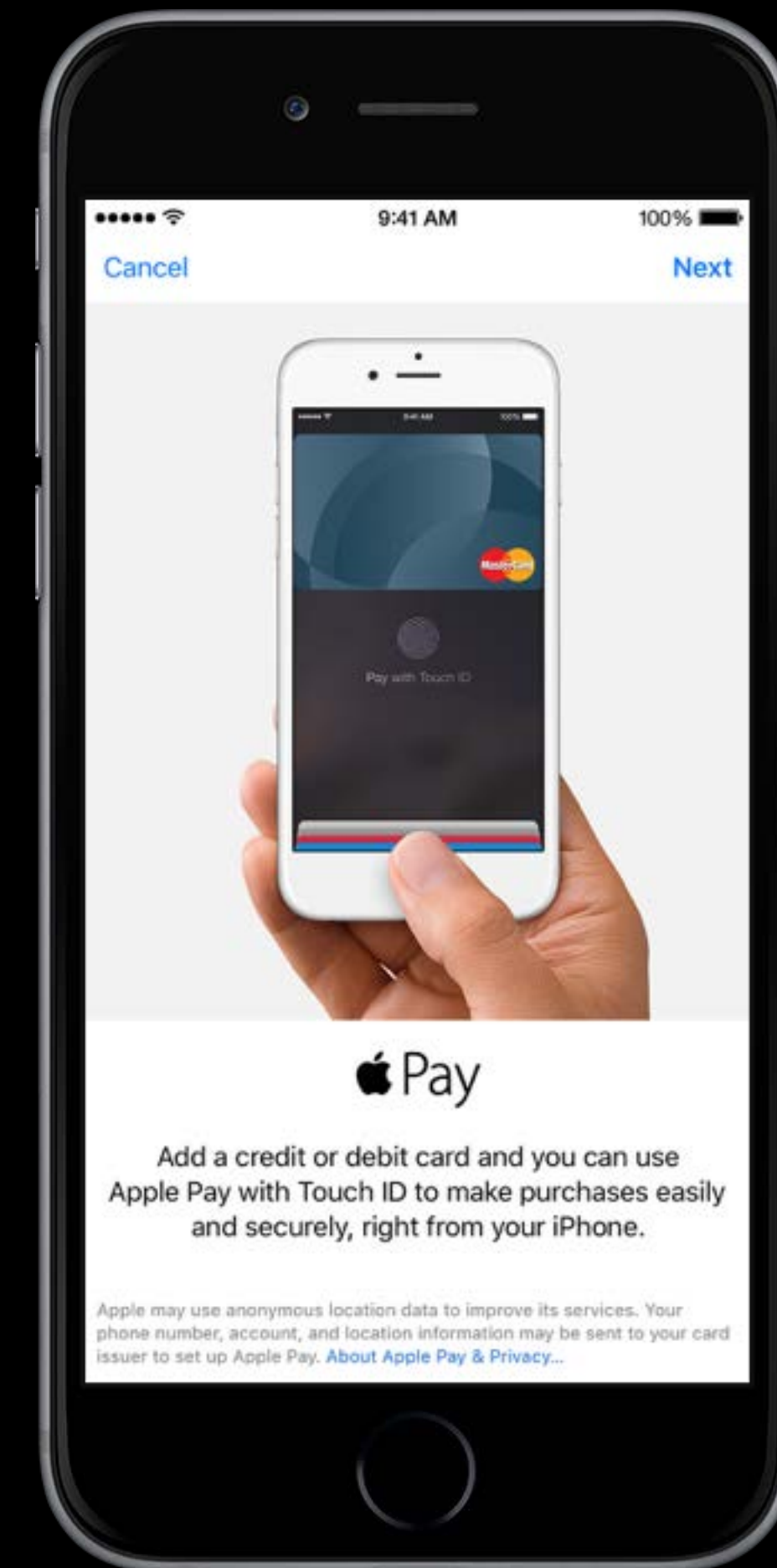
- Seamless payment experience
- Higher conversion rates

PassKit + Apple Pay

NEW

Adding Payment Passes

- Link to Wallet
- Within an app



PKPassLibrary

NEW

PKPassLibrary

NEW

```
func openPaymentSetup()
```

PKAddPaymentPassViewController

NEW

```
class func canAddPaymentPass() -> Bool
```

```
init?(requestConfiguration configuration: PKAddPaymentPassRequestConfiguration,  
      delegate delegate: PKAddPaymentPassViewControllerDelegate?)
```

PKAddPaymentPassViewController

NEW

```
class func canAddPaymentPass() -> Bool
```

```
init?(requestConfiguration configuration: PKAddPaymentPassRequestConfiguration,  
      delegate delegate: PKAddPaymentPassViewControllerDelegate?)
```

PKAddPaymentPassViewControllerDelegate

PKAddPaymentPassViewControllerDelegate

```
func addPaymentPassViewController(controller: PKAddPaymentPassViewController,  
generateRequestWithCertificateChain certificates: [NSData],  
                                   nonce nonce: NSData,  
                                   nonceSignature nonceSignature: NSData,  
                                   completionHandler handler: (PKAddPaymentPassRequest) -> Void)
```

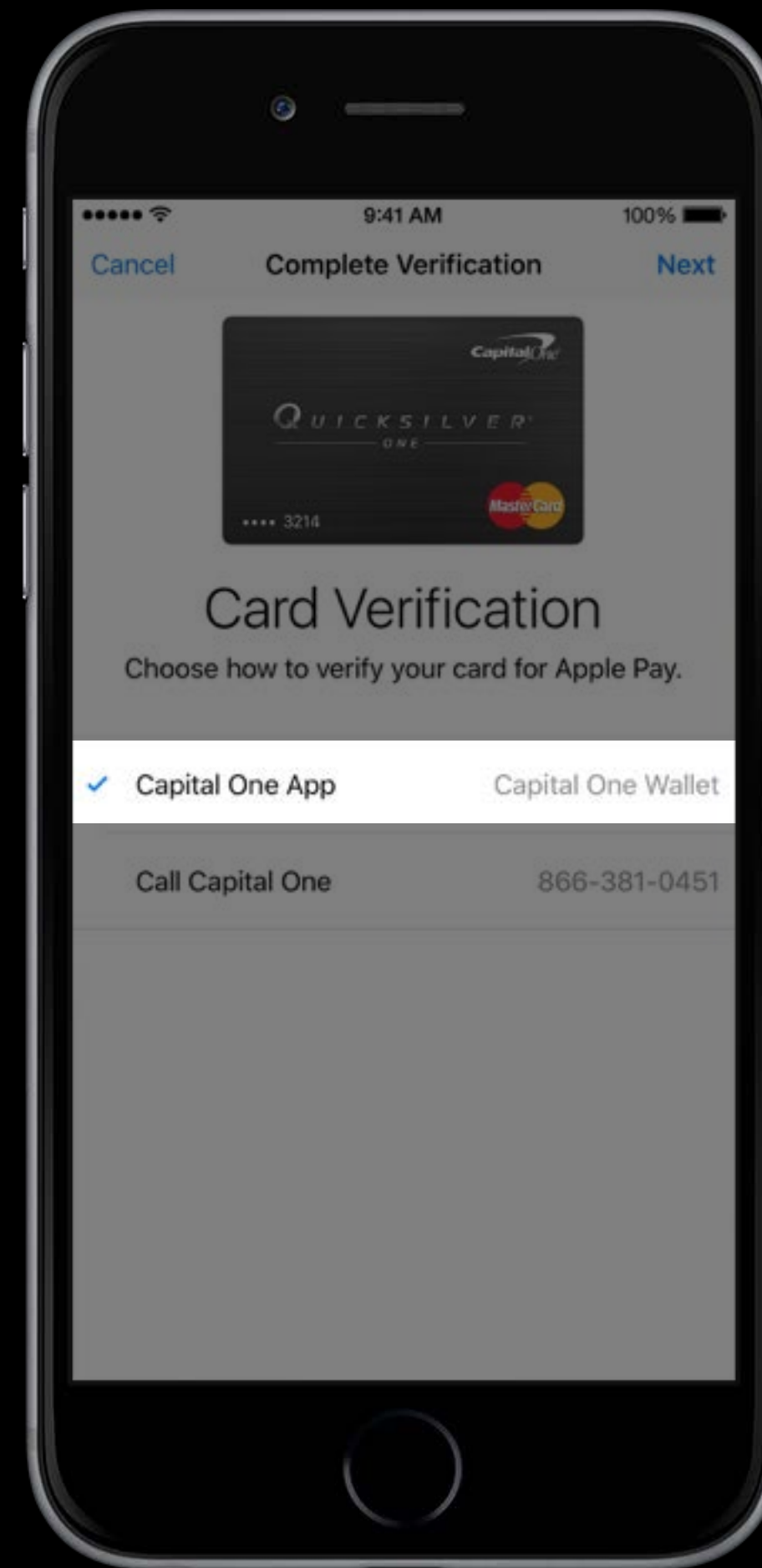
Payment Pass Verification

NEW



Payment Pass Verification

NEW



Payment Pass Verification

NEW



PKPassLibrary

NEW

```
func isPaymentPassActivationAvailable() -> Bool
```

```
func activatePaymentPass(paymentPass: PKPaymentPass,  
    withActivationData activationData: NSData,  
    completion: ((Bool, NSError) -> Void)?)
```

PKPassLibrary

NEW

```
func isPaymentPassActivationAvailable() -> Bool
```

```
func activatePaymentPass(paymentPass: PKPaymentPass,  
    withActivationData activationData: NSData,  
    completion: ((Bool, NSError) -> Void)?)
```

PKPassLibrary

NEW

```
func isPaymentPassActivationAvailable() -> Bool
```

```
func activatePaymentPass(paymentPass: PKPaymentPass,  
    withActivationData activationData: NSData,  
    completion: ((Bool, NSError) -> Void)?)
```

Contactless Interface Suppression

NEW

- Temporarily disables payment UI
- Requires user's permission

PKPassLibrary

NEW

```
class func requestAutomaticPassPresentationSuppressionWithResponseHandler  
(responseHandler: (PKAutomaticPassPresentationSuppressionResult) ->  
PKSuppressionRequestToken)
```

```
class func endAutomaticPassPresentationSuppressionWithRequestToken  
(requestToken: PKSuppressionRequestToken)
```

```
class func isSuppressingAutomaticPassPresentation() -> Bool
```

PKPassLibrary

NEW

```
class func requestAutomaticPassPresentationSuppressionWithResponseHandler  
(responseHandler: (PKAutomaticPassPresentationSuppressionResult) ->  
PKSuppressionRequestToken)
```

```
class func endAutomaticPassPresentationSuppressionWithRequestToken  
(requestToken: PKSuppressionRequestToken)
```

```
class func isSuppressingAutomaticPassPresentation() -> Bool
```

PKPassLibrary

NEW

```
class func requestAutomaticPassPresentationSuppressionWithResponseHandler  
(responseHandler: (PKAutomaticPassPresentationSuppressionResult) ->  
PKSuppressionRequestToken)
```

```
class func endAutomaticPassPresentationSuppressionWithRequestToken  
(requestToken: PKSuppressionRequestToken)
```

```
class func isSuppressingAutomaticPassPresentation() -> Bool
```

PKPassLibrary

NEW

```
class func requestAutomaticPassPresentationSuppressionWithResponseHandler  
(responseHandler: (PKAutomaticPassPresentationSuppressionResult) ->  
PKSuppressionRequestToken)
```

```
class func endAutomaticPassPresentationSuppressionWithRequestToken  
(requestToken: PKSuppressionRequestToken)
```

```
class func isSuppressingAutomaticPassPresentation() -> Bool
```

PassKit + Apple Watch

NEW



PassKit + Apple Watch

NEW

- Add
- Remove
- Query



PassKit + Apple Watch

NEW



PassKit + Apple Watch

NEW

- Passes look different
- Follow HI guidelines



1D Barcodes

NEW



1D Barcodes

NEW

New barcode format:

PKBarcodeFormatCode128



1D Barcodes

NEW

```
"barcode" : {  
  "message" : "123456789",  
  "format" : "PKBarcodeFormatPDF417",  
  "messageEncoding" : "iso-8859-1"  
},  
"barcodes" : [  
  {  
    "message" : "Hello World Code 128",  
    "format" : "PKBarcodeFormatCode128",  
    "messageEncoding" : "iso-8859-1"  
  },  
  {  
    "message" : "Hello World QR Code",  
    "format" : "PKBarcodeFormatPDF417",  
    "messageEncoding" : "iso-8859-1"  
  }  
],
```



1D Barcodes

NEW

- Verify your system supports 1D barcodes
 - Optical scanners
- Fall back to 2D barcodes on iOS 8 and below



Remember...

Solving the overstuffed wallet problem

- Passes allow user to take action in the real world
- Easy to integrate
- Keep passes engaging

Integrate Apple Pay into your app

Use Wallet and Apple Pay

More Information

Documentation and Videos

Passbook for Developers

<http://developer.apple.com/passbook/>

Apple Pay for Developers

<http://developer.apple.com/apple-pay/>

Introducing Passbook Part 1 & 2 - WWDC 2012

<http://developer.apple.com/videos/wwdc/2012/>

Integrating Passbook into Your Ecosystem - WWDC 2013

<http://developer.apple.com/videos/wwdc/2013/>

More Information

Technical Support

Apple Developer Forums

<http://developer.apple.com/forums>

Developer Technical Support

<http://developer.apple.com/support/technical>

General Inquiries

Paul Danbold, Core OS Evangelist

danbold@apple.com

Related Sessions

Introducing WatchKit for watchOS 2	Presidio	Tuesday 10:00AM
Apple Pay Within Apps	Mission	Tuesday 11:00AM

Labs

Wallet and Apple Pay Lab	Frameworks Lab C	Tuesday 1:30PM
Wallet and Apple Pay Lab	Frameworks Lab C	Wednesday 1:30PM

