Michael Plagge

Sneak Peak at Passbook

Passbook for Developers

Passbook gives users a whole new way to organize boarding passes, tickets, gift cards, and loyalty cards. You can bring up passes in your app with PassKit APIs, send them via email, or post them on the web. You can also set items to appear at certain times or locations and update items with push notifications.
Contents

- Motivation
- Sample Passes
- Perspectives
- Passbook Ecosystem (Live Cycle, Use Cases, Types of Data)
- Functionality
- Properties
- Pass Kit
- Updating a Pass
Motivation

René’s Farewell @ dorkbot
Sample Passes

Multiple Use Cases

- **Boarding Pass**
  - Skyport Airways
  - Flight: SFO → JFK
  - Date: 7/23
  - Passenger: John Appleseed

- **Coupon**
  - Paw Planet
  - 20% off Any premium dog food
  - Expires: 24.04.13

- **Event Ticket**
  - Event: The Beat Goes On
  - Location: Moscone West

- **Balance Card**
  - Organic Produce
  - 21.75 $ Remaining balance
  - Deal of the Day: Lemons
Perspectives

Role Models

- Developer (Certificates require Membership)
  - Generate
  - Provide
  - Update
  - Redeem / validate (externally)
- User
Passbook Ecosystem

Live Cycle

- Creation
- Distribution
- Management
- Update
- Redemption
Passbook Ecosystem

Live Cycle: Creation

- Developer’s job
- Package containing images and some JSON
- Pass Identification:
  - Pass Type Identifier
  - Serial Number
- Cryptographically signed
  - Tool: `signpass (cmdline)`

Directory structure of a sample pass
Passbook Ecosystem

Pass Properties

pass.json

Visual Appearance (different type templates, colors, formatting)

- iOS
- Apple Watch
  - re-renders content automatically
  - reduced information on display
Passbook Ecosystem

Pass Properties

Content

- Serial Number
- Text Fields
- Images (different versions)

Barcode

- several formats supported
- reading requires optical scanner (no laser)
Passbook Ecosystem
Pass Properties

```
{
  "description": "SECRET LOCATION 003(DAY 2)",
  "formatVersion": 1,
  "organizationName": "Ticketscript BV",
  "passTypeIdentifier": "pass.ticketscript.passbook2",
  "serialNumber": "T48370073",
  "teamIdentifier": "J6TRY962DZ",
  "eventTicket": {
    "headerFields": [],
    "primaryFields": [],
    "secondaryFields": [
      {
        "key": "Location",
        "value": "Secret Location",
        "label": "Location"
      }
    ],
  },
  "barcode": {
    "altText": "JP4781",
    "format": "PKBarcodeFormatPDF417",
    "message": "061027JP4781011E81",
    "messageEncoding": "iso-8859-1"
  },
  "backgroundColor": "rgb(0, 174, 239)",
  "foregroundColor": "rgb(255, 255, 255)",
  "labelColor": "rgb(109, 110, 113)",
  "logoText": "SECRET LOCATION 003(DAY 2)"
}
```

...
Passbook Ecosystem

Pass Properties

Lock Screen Support

- makes relevant Passes easily accessible
- defined by relevant date and location information
  - used as passive information
  - can be tailored and updated
  - to be tested on a device
- somehow similar to iBeacons
Passbook Ecosystem

Live Cycle: Distribution

- MIME type: `application/vnd.apple.pkpass`
- Supporting Apps: Mail & Safari
- OS X: via iCloud
- iOS: automatically
- Pass Kit framework
  - Passbook library access
  - by matching App Entitlement & Pass Type ID
Passbook Ecosystem

Live Cycle: Management

- User’s job
- Passbook
- Lock Screen
Passbook Ecosystem

Live Cycle: Update

- Push Notification
- Snapshot / Latest Version
- Example: Updated (delayed) train departure schedule
- Fixed Properties: Pass Type ID & Serial Number
- Warning: Do not (confuse the user)...
  - "replace" semantic content
  - remove (expired) passes without user consent
Passbook Ecosystem

Live Cycle: Redemption

- Developer’s job
- Do not solely rely on information that comes with the Pass
  - Passes can be duplicated or maybe altered
  - Passes can survive their expiration date
- Always rely on own / local Infrastructure / Database and Logic
  - (see Examples)
Passbook Ecosystem

Use Cases

- Coupon (One-Time-Use)
  - manage redemption in OWN infrastructure
- Voucher with Balance
  - manage balance in OWN infrastructure
- Season Membership
  - Offline Case: Year of Validity cryptographically signed and verified
Passbook Ecosystem

Types of encoded Data

- Passes (in general) have limited trustworthiness
  - Information can be duplicated / reused
- Passes are only a mean of identification
  - similar to website cookies - or even more limited
- Storage of Raw Data is also possible
  - signing recommended
Enriching own Applications

- Don‘t duplicate Passbook functionality
- Manage Passes
- Access the Passes on the Device
- Create calendar entries etc.
Pass Kit

Tools and Requirements

- Classes
  - PKPass
  - PKPassLibrary
- Requirements
  - availability of Pass Library on Device
Pass Kit

Interactions (with the pass library)

- Check whether a specific Pass is in the Library
- Getting Passes (with matching entitlements)
- Reading a Pass
  - Pass Type Identifier
  - Serial Number
- Adding a new Pass
- Changing a Pass (requires server signing)
- Removing a Pass
Updating a Pass

Connecting to the Real World

- Uses Push Notifications
  - but in a different manner
  - in a standardized way (for the Passbook app)
  - based on shared secrets
    - between Server and Device
Updating a Pass

Flow of Control

- Device registers for Updates
- Server sends Push Notifications
- Device asks for changed Serial Number of Pass
- Device asks for latest version of Pass
- Device displays Change Message
Updating a Pass

Flow of Control

Interaction between the client and your server
Thank you!