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Sneak Peak at Passbook



Passbook for Developers

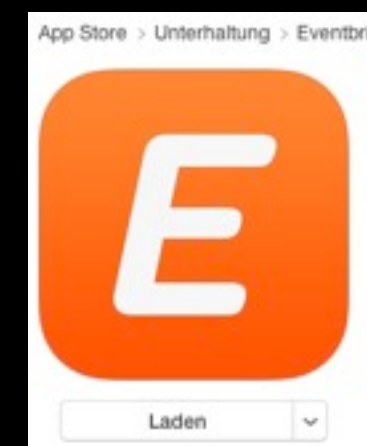
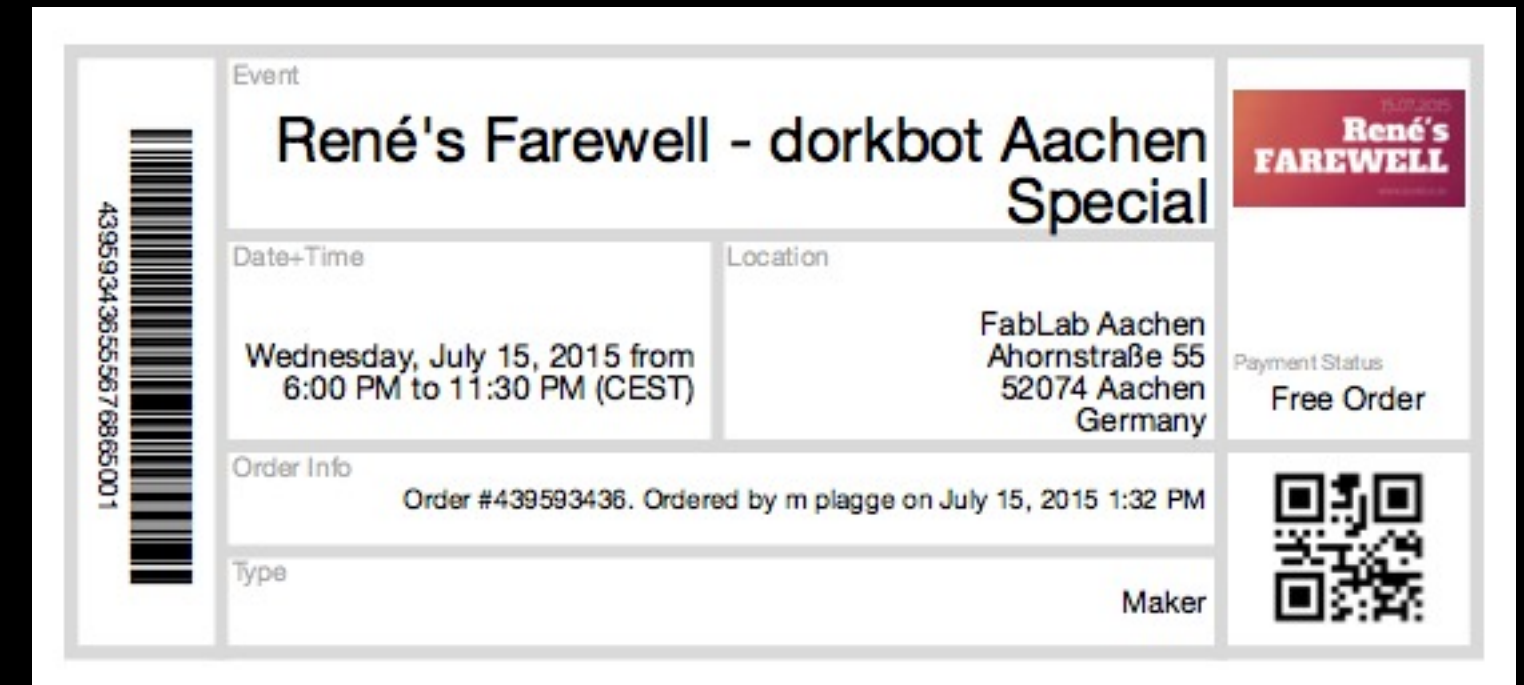
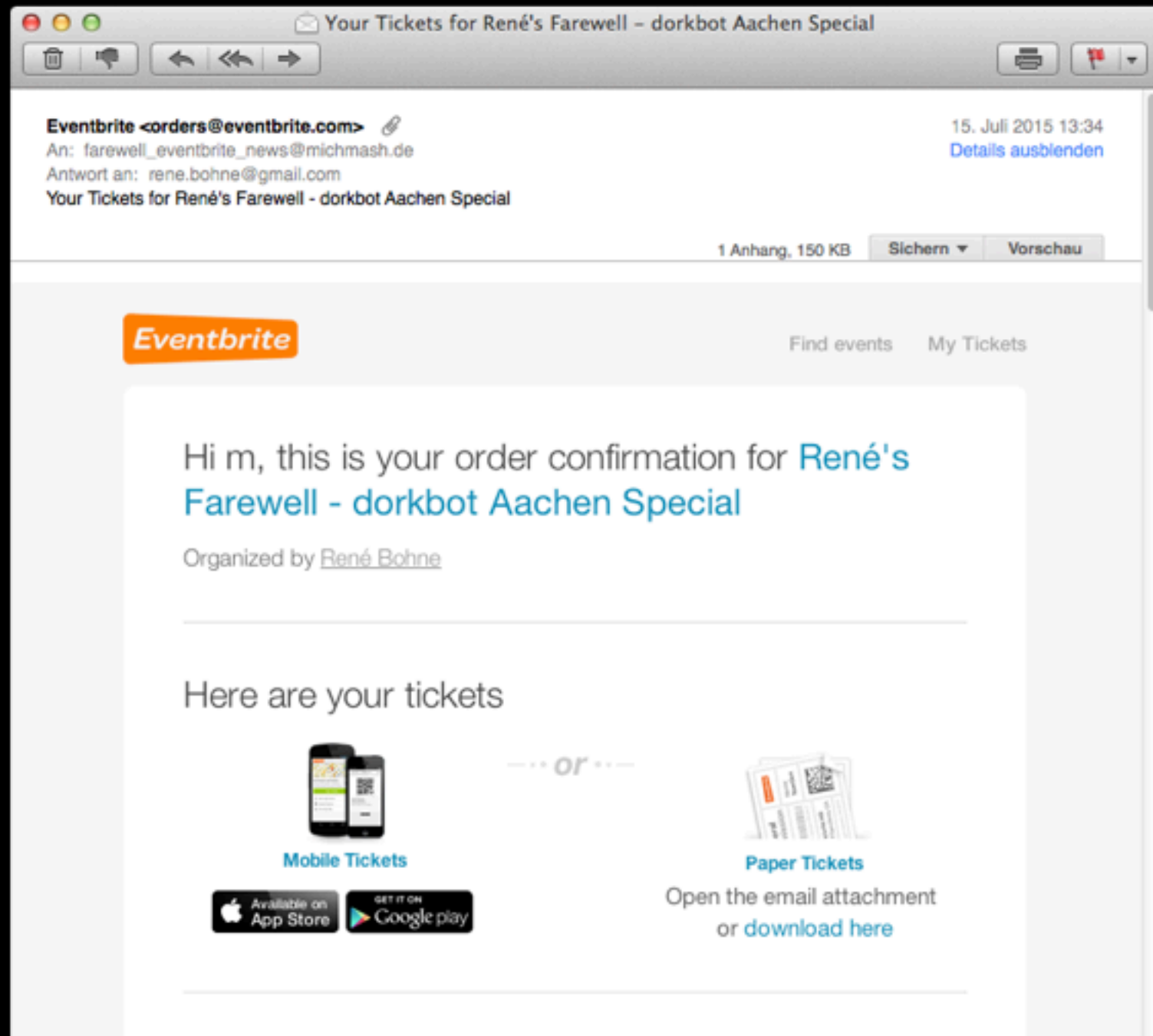
Passbook gives users a whole new way to organize boarding passes, tickets, gift cards, and loyalty cards. You can bring up passes in your app with PassKit APIs, send them via email, or post them on the web. You can also set items to appear at certain times or locations and update items with push notifications.

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



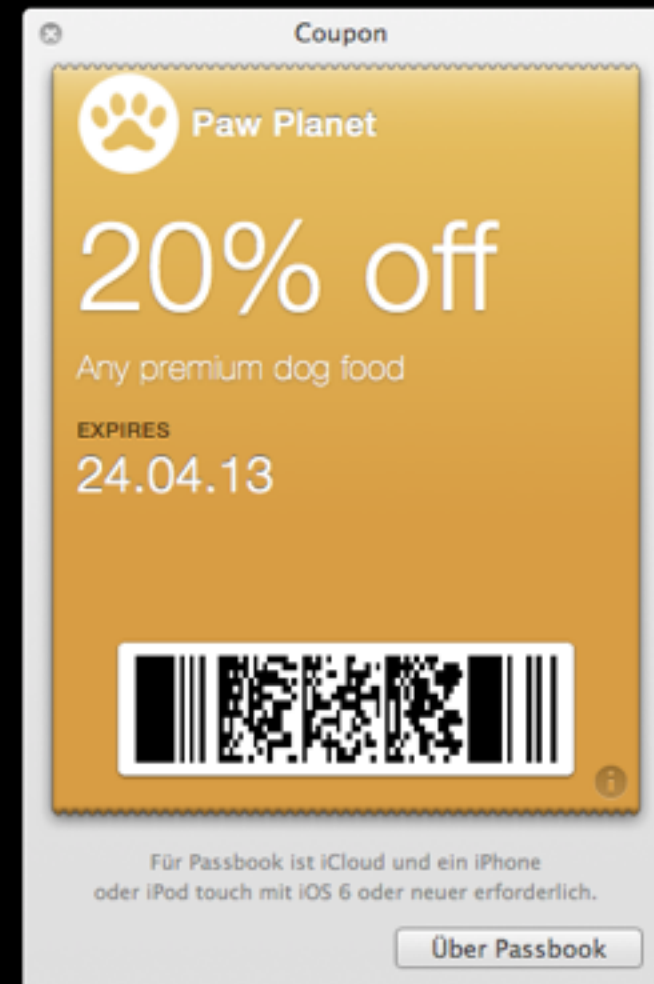
No!

Sample Passes

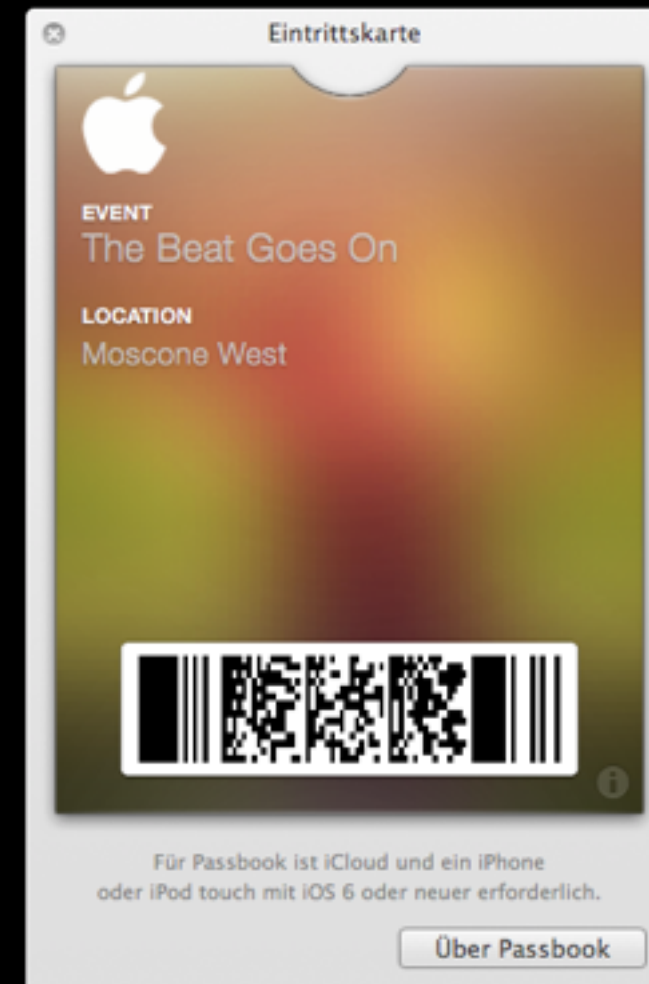
Multiple Use Cases



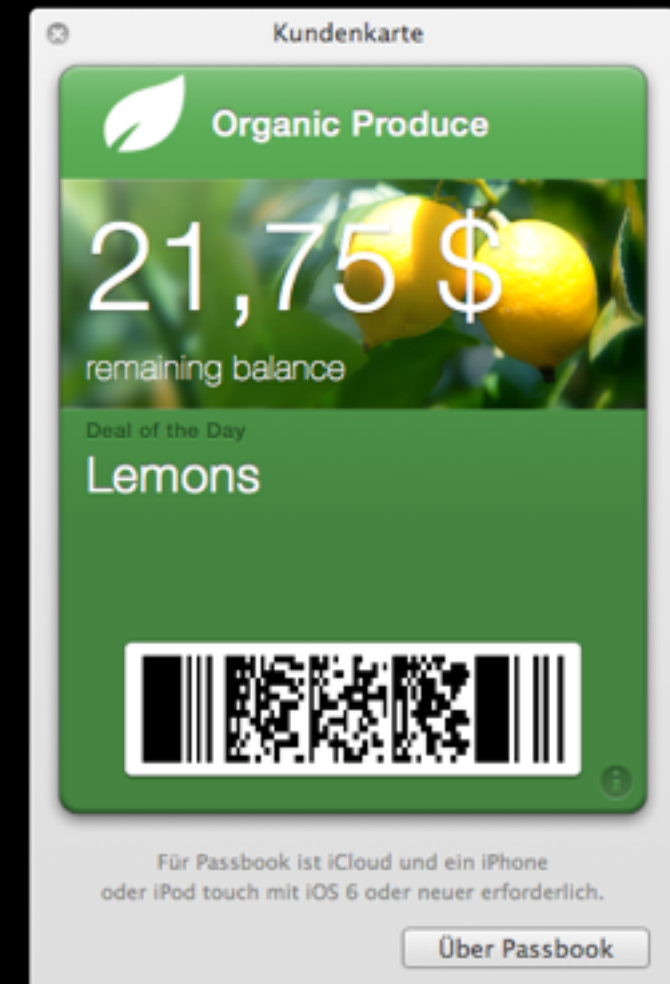
Boarding Pass



Coupon



Event Ticket



Balance Card

Perspectives Role Models

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

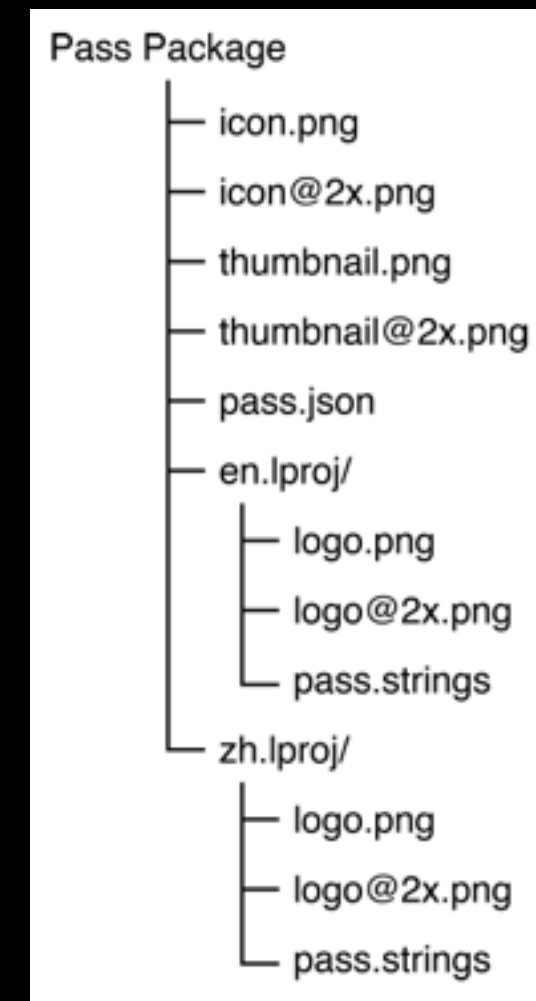
Passbook Ecosystem Live Cycle

- ✦ 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

pass.json

```
{
  "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

Types of encoded Data

- ✦ Passes (in general) have limited trustworthyness
 - ✦ 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

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

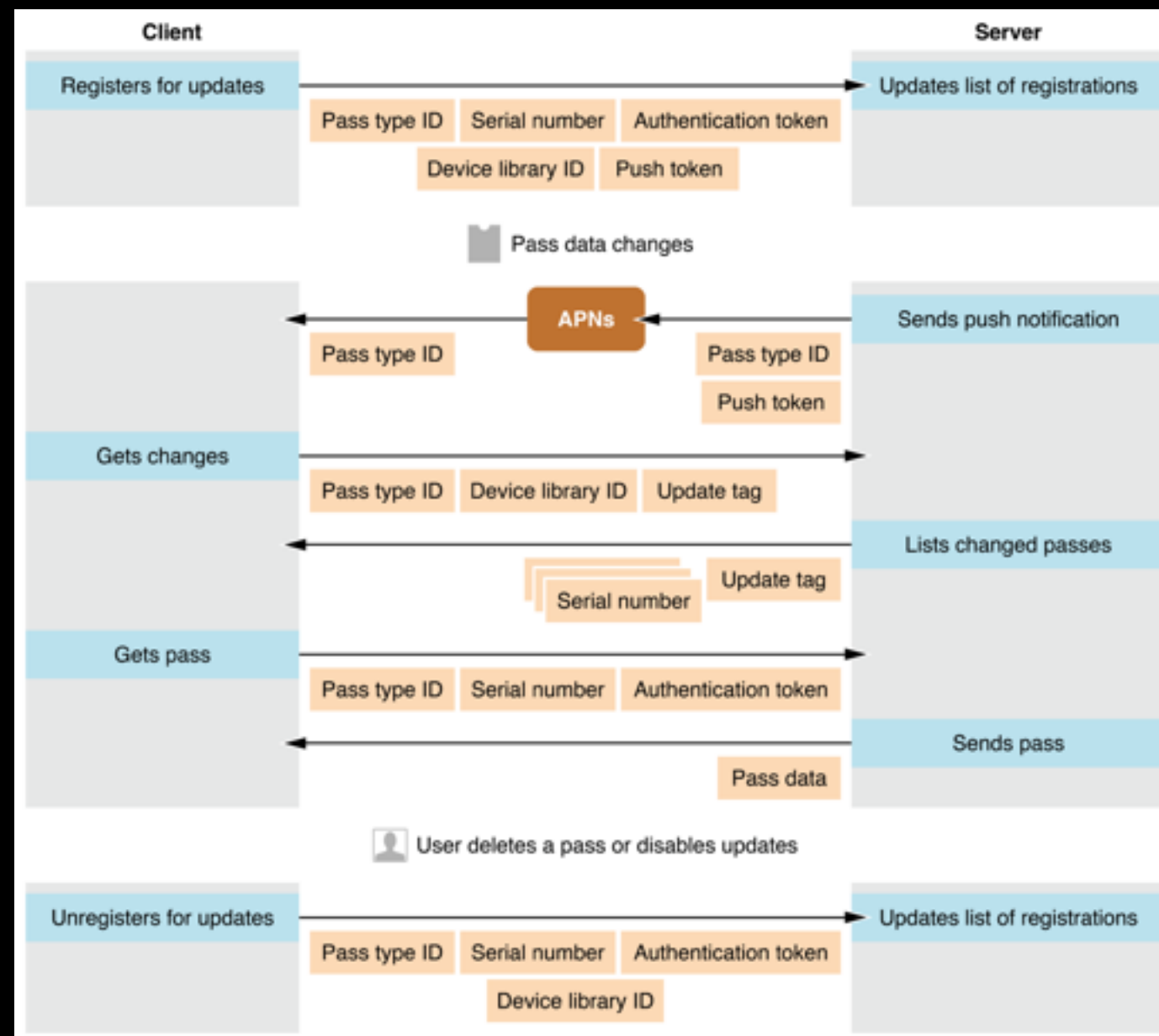
- ✦ Uses Push Notifications
 - ✦ but in a different manner
 - ✦ in a standardized way (for the Passbook app)
 - ✦ based on shared secrets
 - ✦ between Server and Device

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!

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

[https://developer.apple.com/library/ios/documentation/
UserExperience/Conceptual/PassKit_PG/Chapters/
Introduction.html](https://developer.apple.com/library/ios/documentation/UserExperience/Conceptual/PassKit_PG/Chapters/Introduction.html)