

Harnessing iOS to Create Magic in Your Apps

Session 310

Filip Kršmanović

Engineering Manager, Mobile Apps

These are confidential sessions—please refrain from streaming, blogging, or taking pictures

Apple Store App





Agenda

An event is coming up...



Spending time at location...

We are here

iOS Technologies We Will Use

iOS Technologies We Will Use

- Calendar Events



iOS Technologies We Will Use

- Calendar Events
- Push Notification



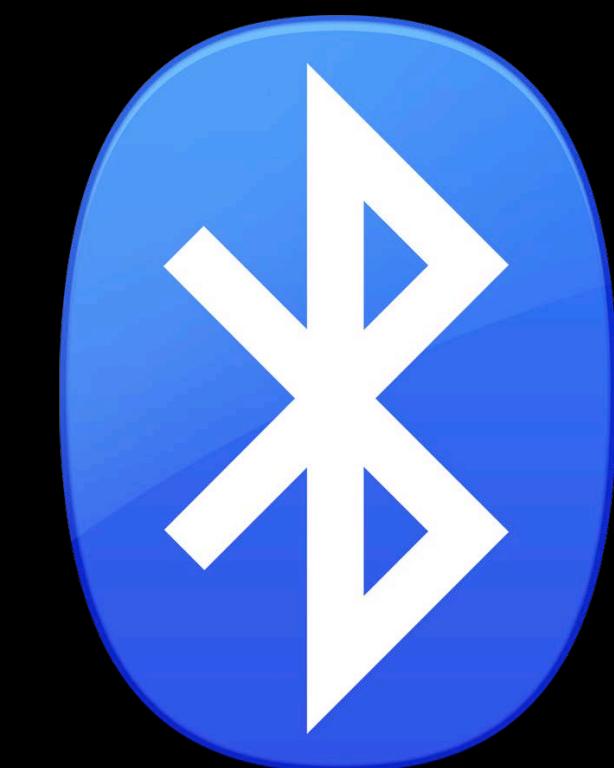
iOS Technologies We Will Use

- Calendar Events
- Push Notification
- Core Location
- Region Monitoring



iOS Technologies We Will Use

- Calendar Events
- Push Notification
- Core Location
- Region Monitoring
- iBeacons



An Event is Coming Up

Tell your users about it

Agenda

An event is coming up...



Spending time at location...

Remind the user
of an event

We are here

Agenda

An event is coming up...



Spending time at location...

Remind the user
of an event

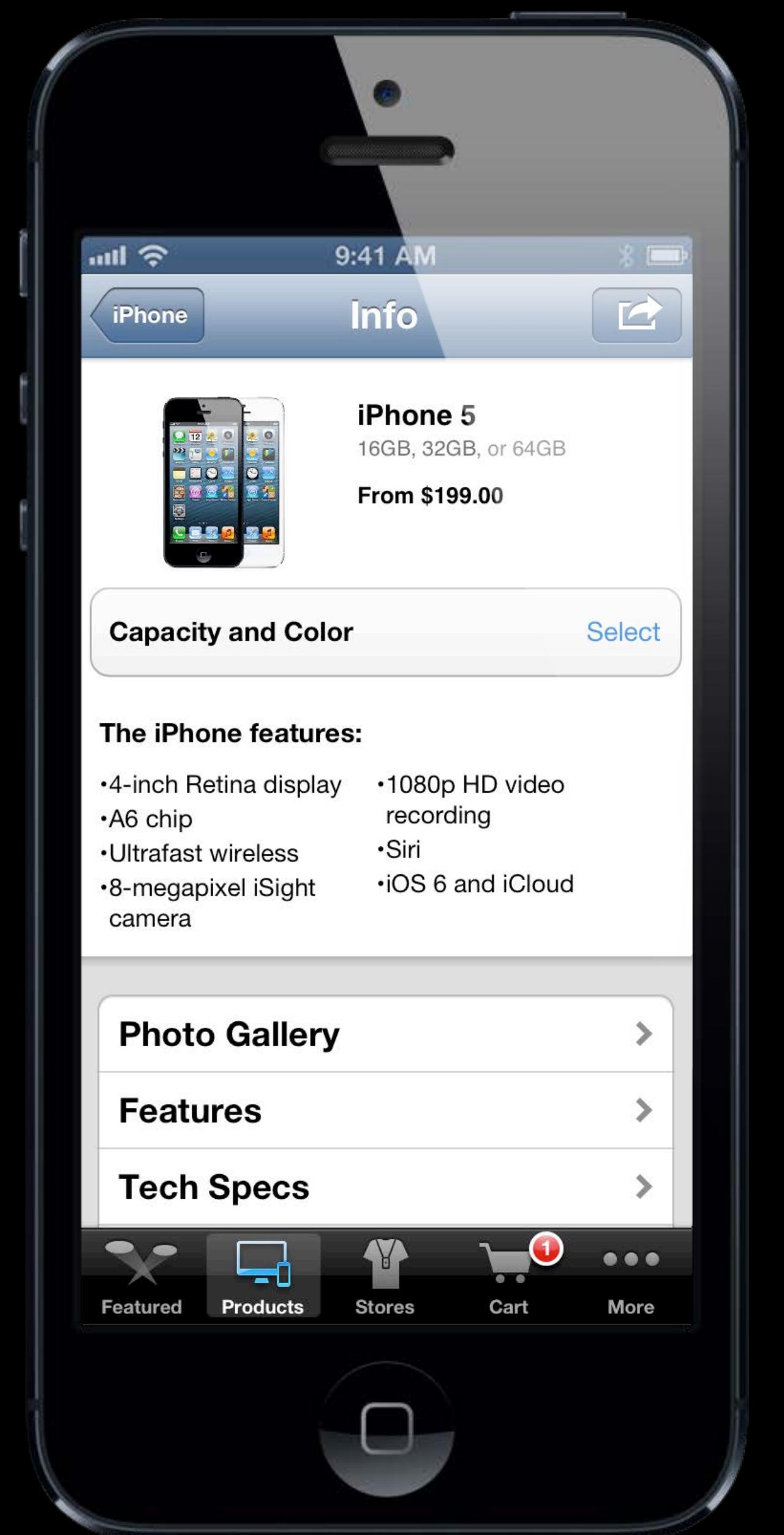
We are here



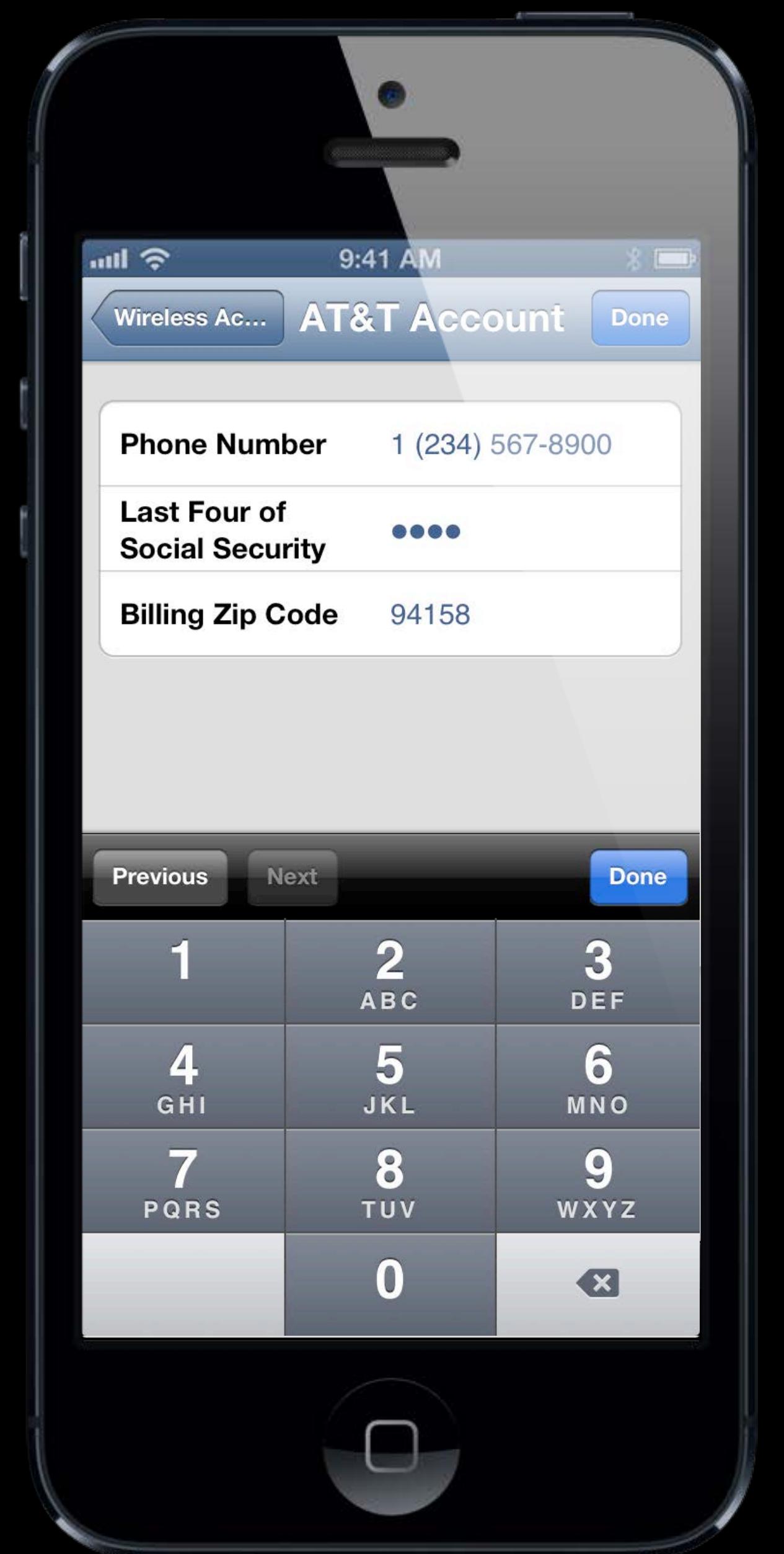
Calendar

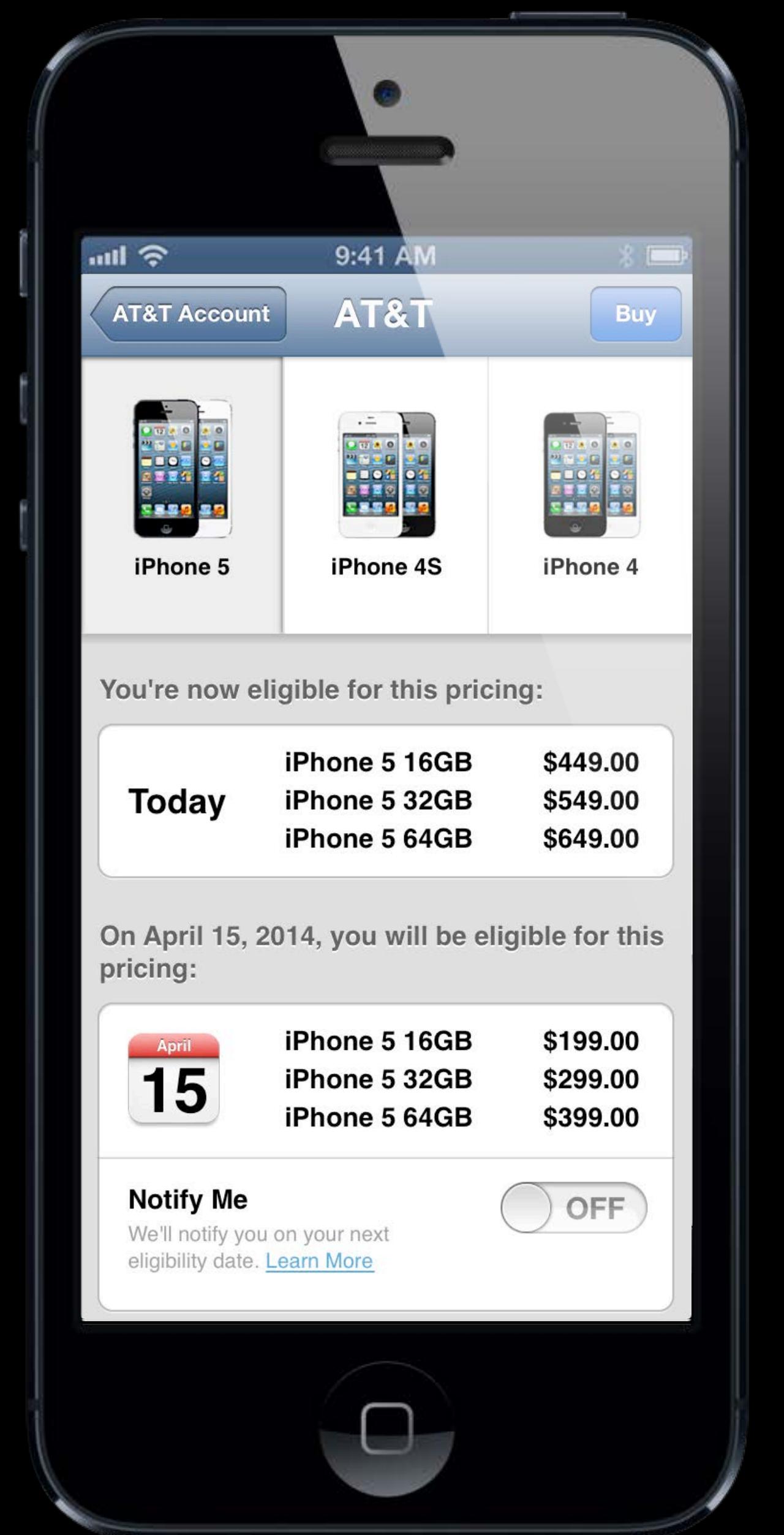


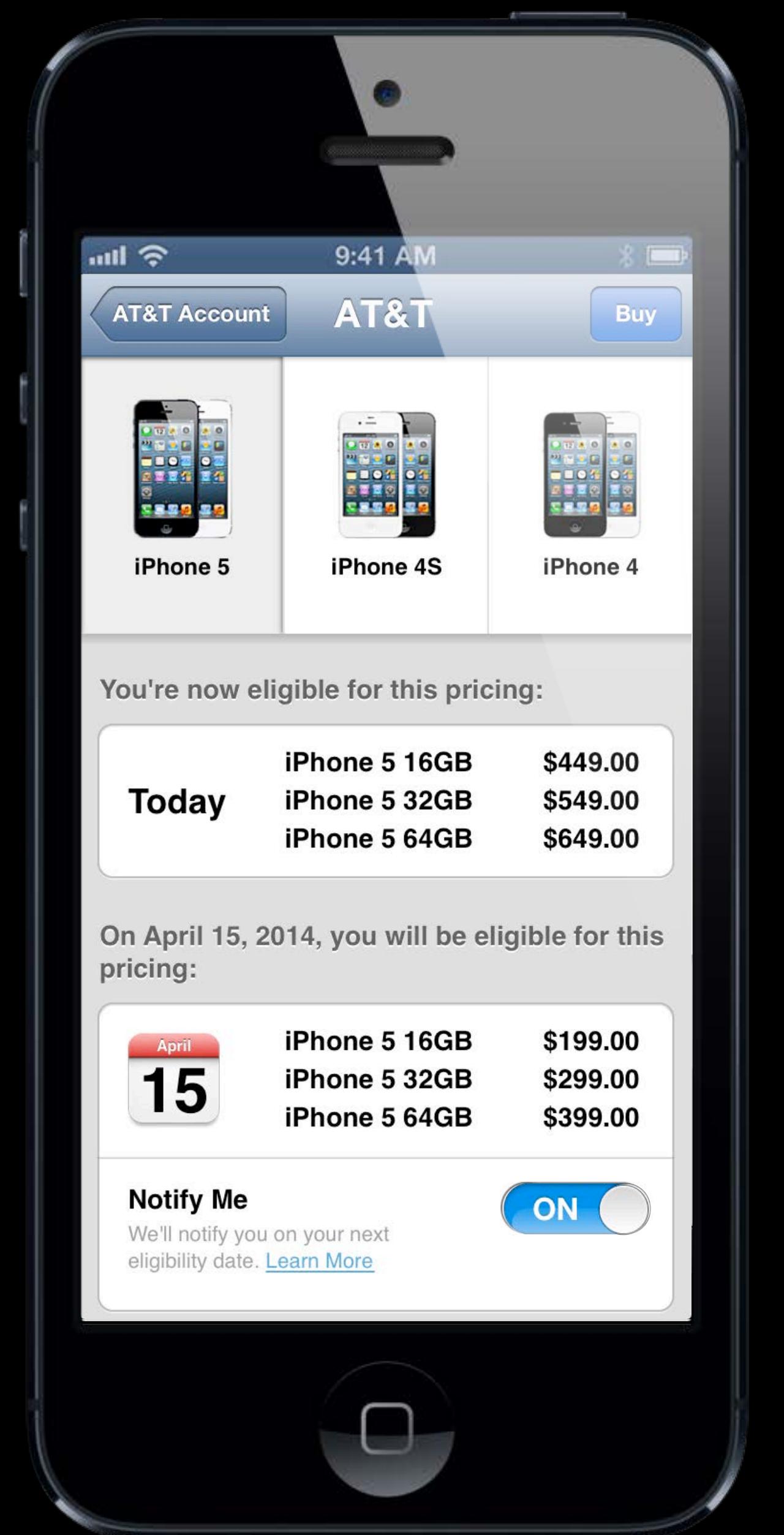
iPhone Upgrade Notifications





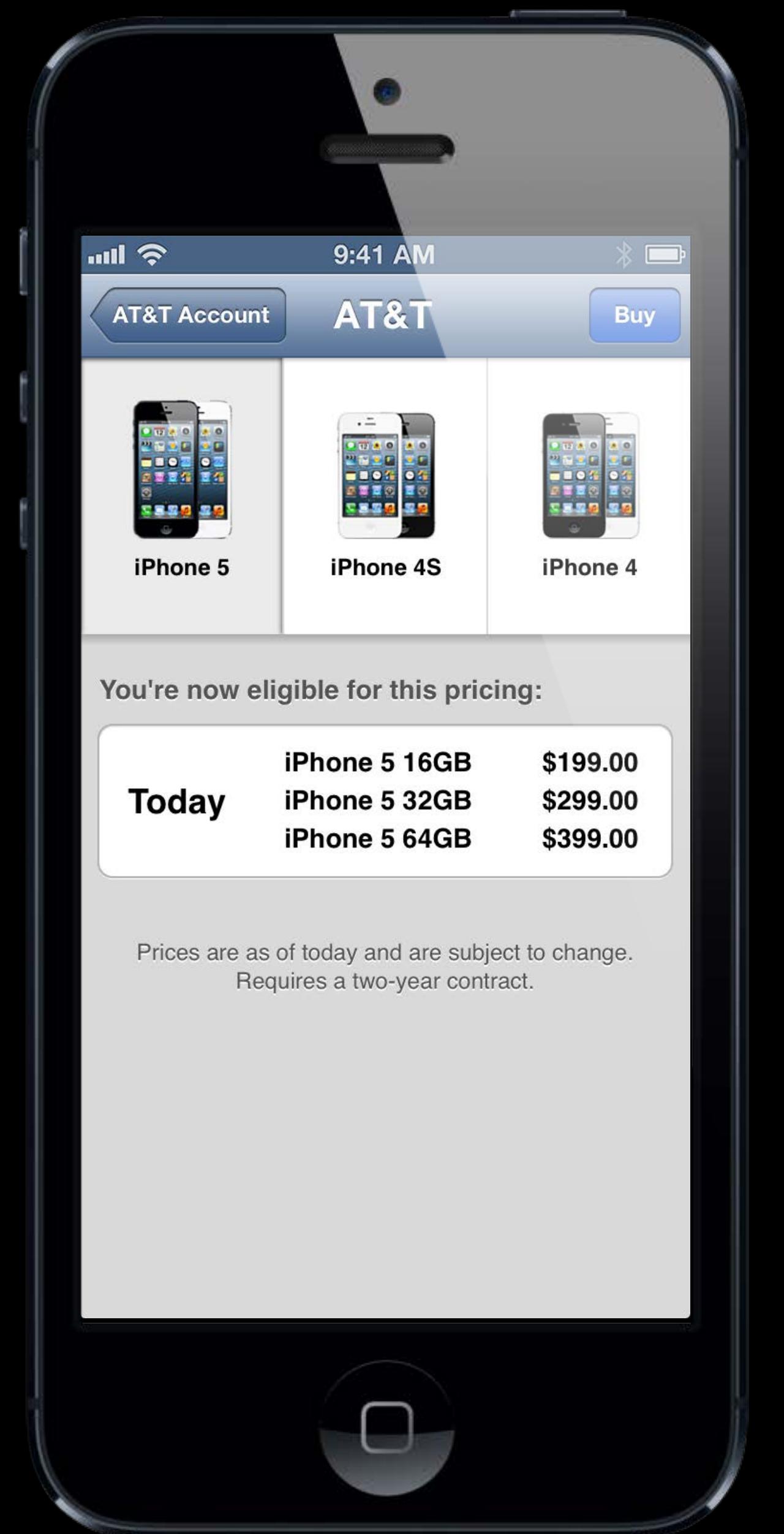












Calendar Events



Calendar Events



Calendar Events



- Simple, yet effective

```
[eventStore requestAccessToEntityType:EKEntityTypeEvent  
completion:^(BOOL granted, NSError *error) {  
  
if (granted) {  
    if(eventStore.defaultCalendarForNewEvents.allowsCo  
ntentModifications) {  
  
        EKEvent *event = [EKEvent  
eventWithEventStore:eventStore];  
  
        event.title = @"Check iPhone Eligibility";  
  
        [eventStore saveEvent:event  
span:EKSpanThisEvent commit:YES error:...];  
  
    } else { //Handle rejection }  
}];
```



Push Notifications



Push Notifications



Push Notifications



- Rich, dynamic event notification



Push Notifications



- Rich, dynamic event notification
- Register push with
 - [UIApplication registerForRemoteNotificationTypes:]



Push Notifications



- Rich, dynamic event notification
- Register push with
 - [UIApplication registerForRemoteNotificationTypes:]
- Receive token from
 - application:didRegisterForRemoteNotificationsWithDeviceToken:



Push Notifications



- Rich, dynamic event notification
- Register push with
 - [UIApplication registerForRemoteNotificationTypes:]
- Receive token from
 - application: didRegisterForRemoteNotificationsWithDeviceToken:
- Store token on your server. When it's time, send the push to APNS with token



Push Notifications



- Rich, dynamic event notification
- Register push with
 - [UIApplication registerForRemoteNotificationTypes:]
- Receive token from
 - application: didRegisterForRemoteNotificationsWithDeviceToken:
- Store token on your server. When it's time, send the push to APNS with token
- Your app may be launched via callback
 - application:didReceiveRemoteNotification:

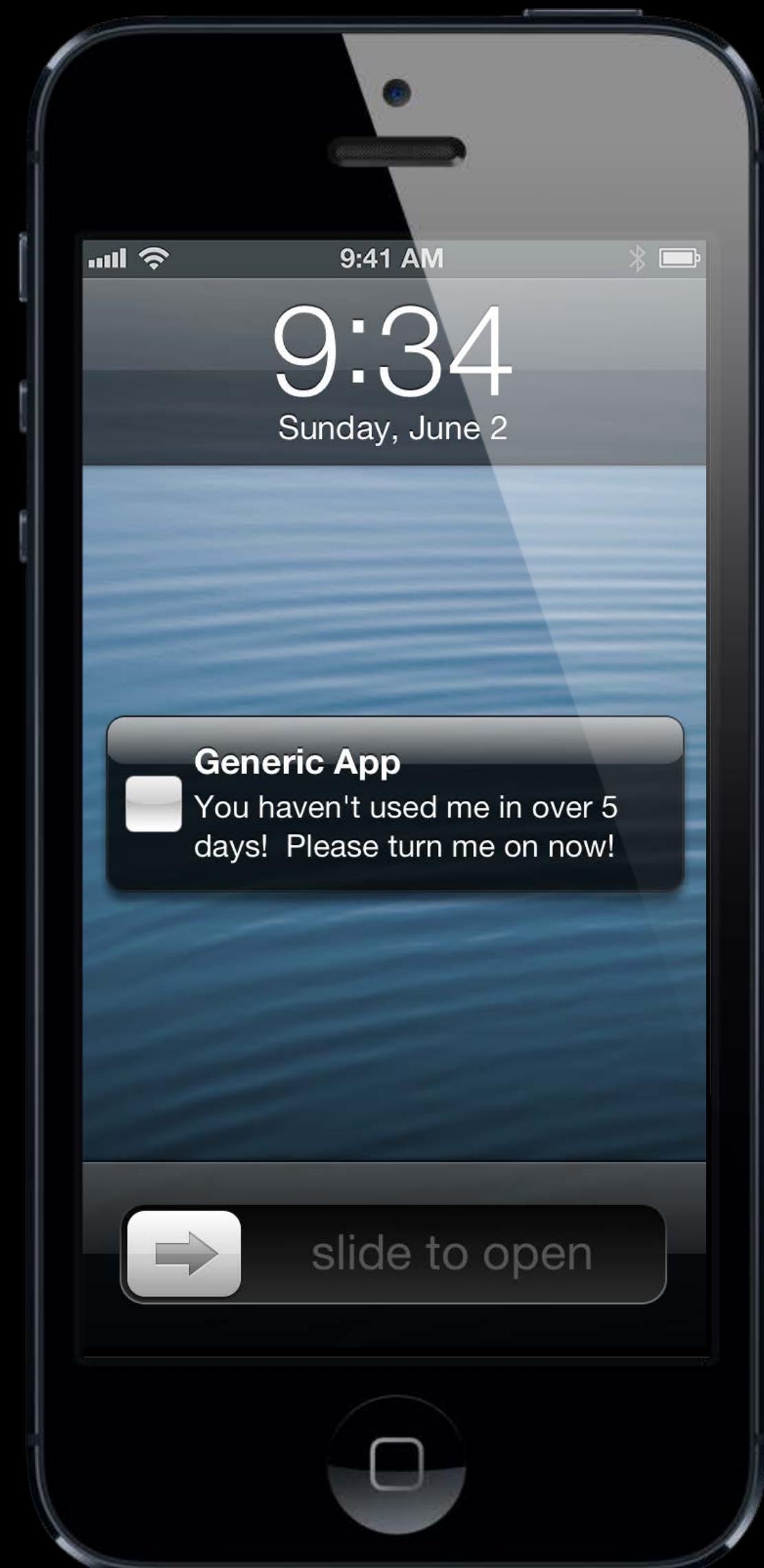


Tips, Tricks And Best Practices

Thou Shalt Not Spam



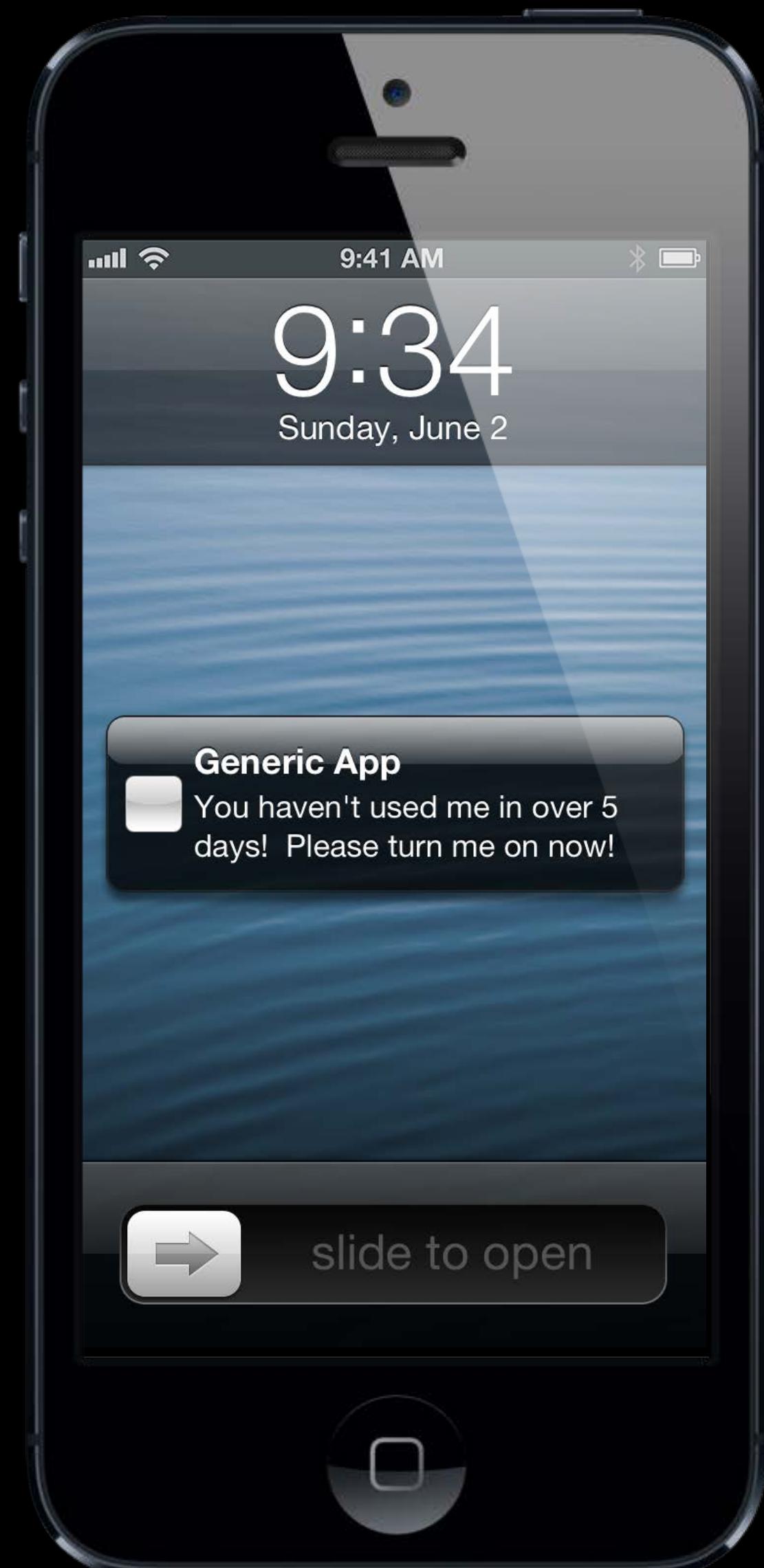
Thou Shalt Not Spam



Thou Shalt Not Spam



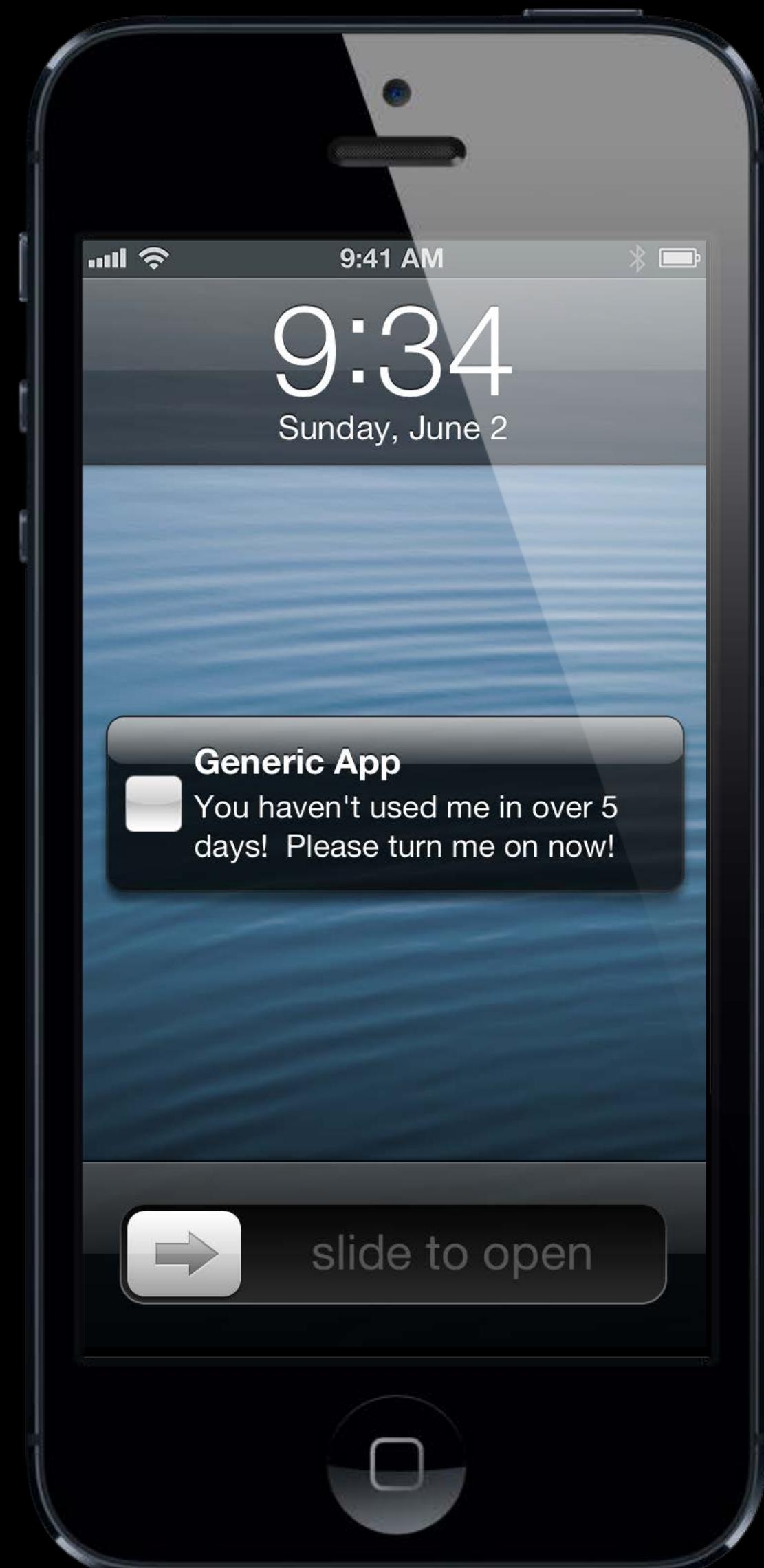
- Notify users of events they care about



Thou Shalt Not Spam



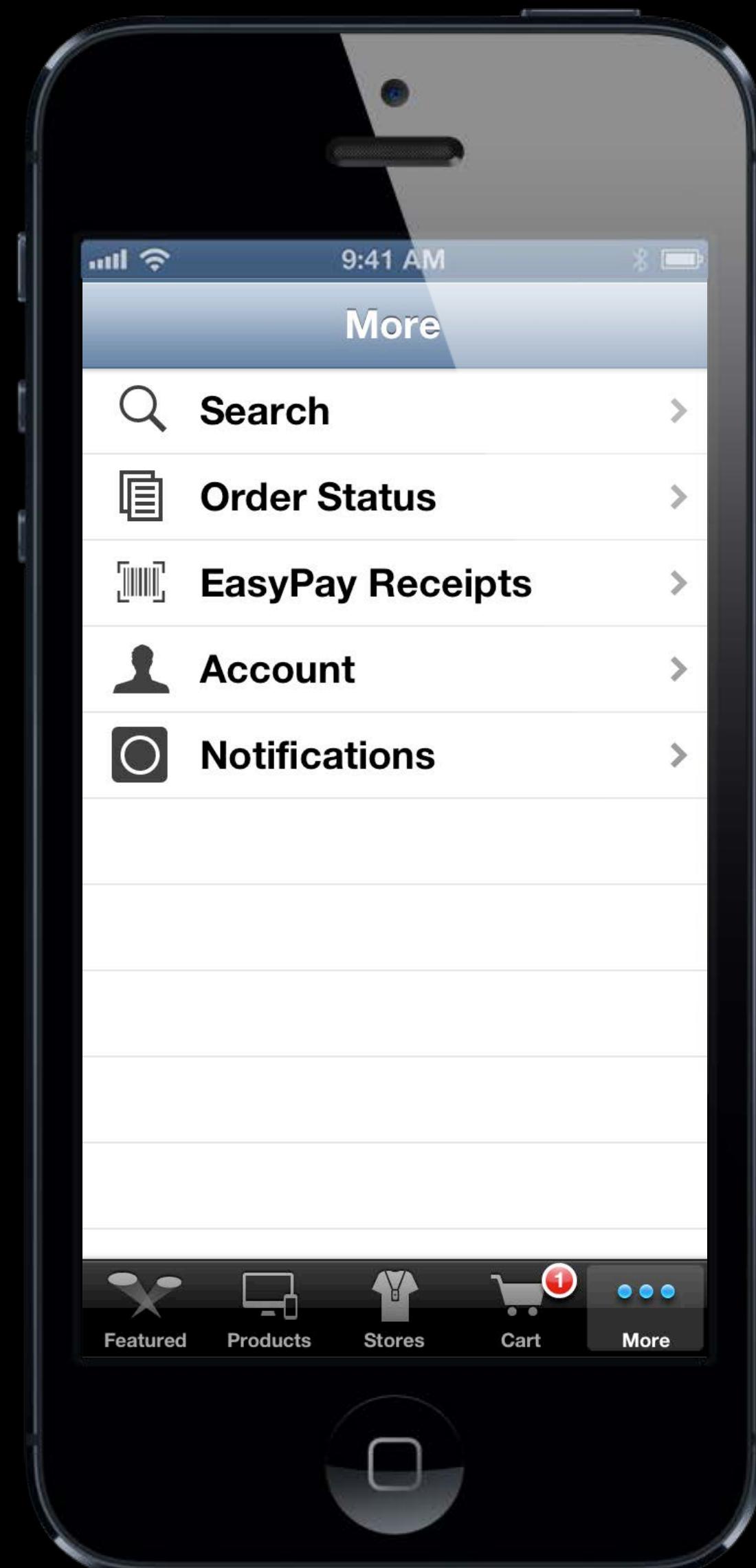
- Notify users of events they care about
- Provide an opt-in method
 - At correct moment in a flow
 - In in-app settings



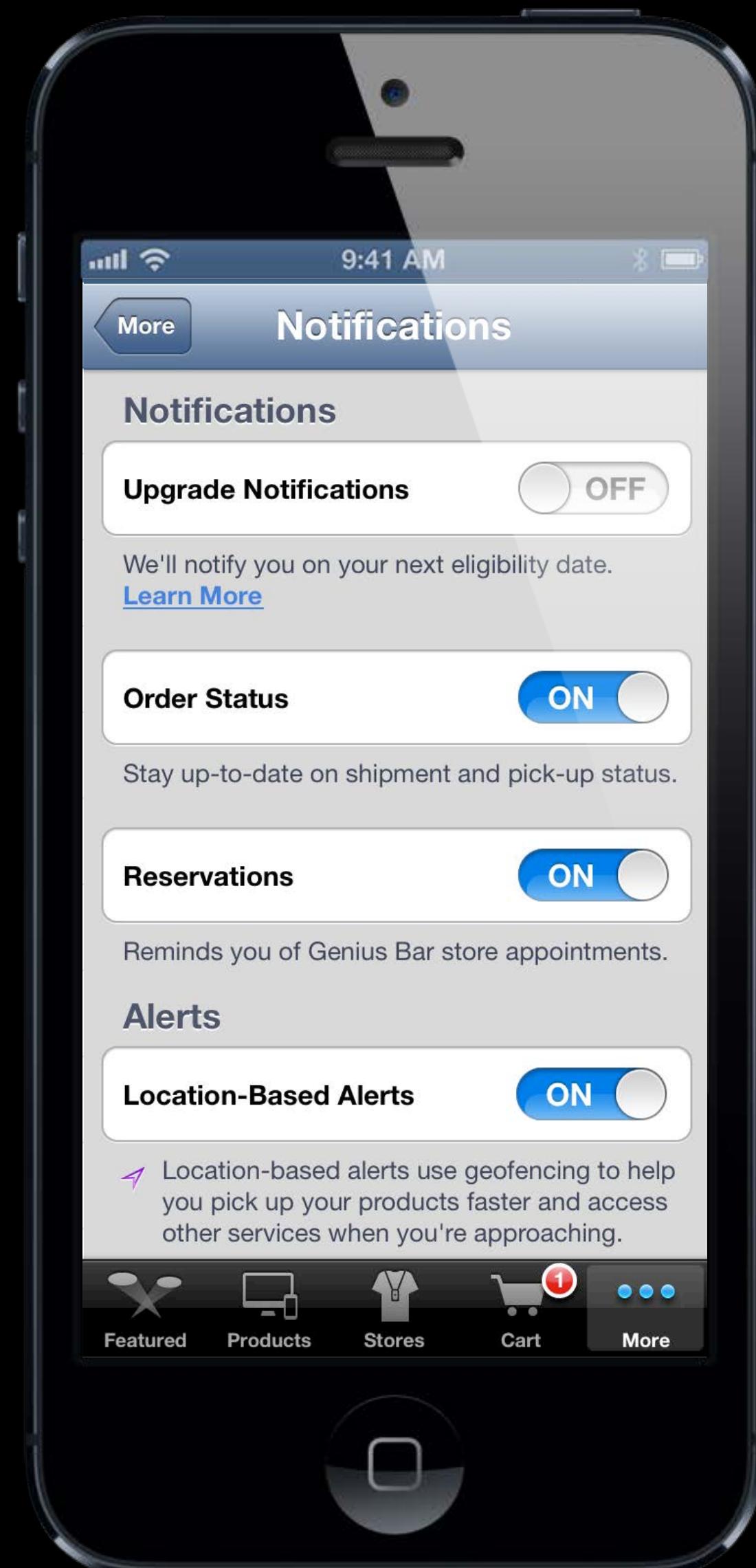
Granular In-App Notification Settings



Granular In-App Notification Settings



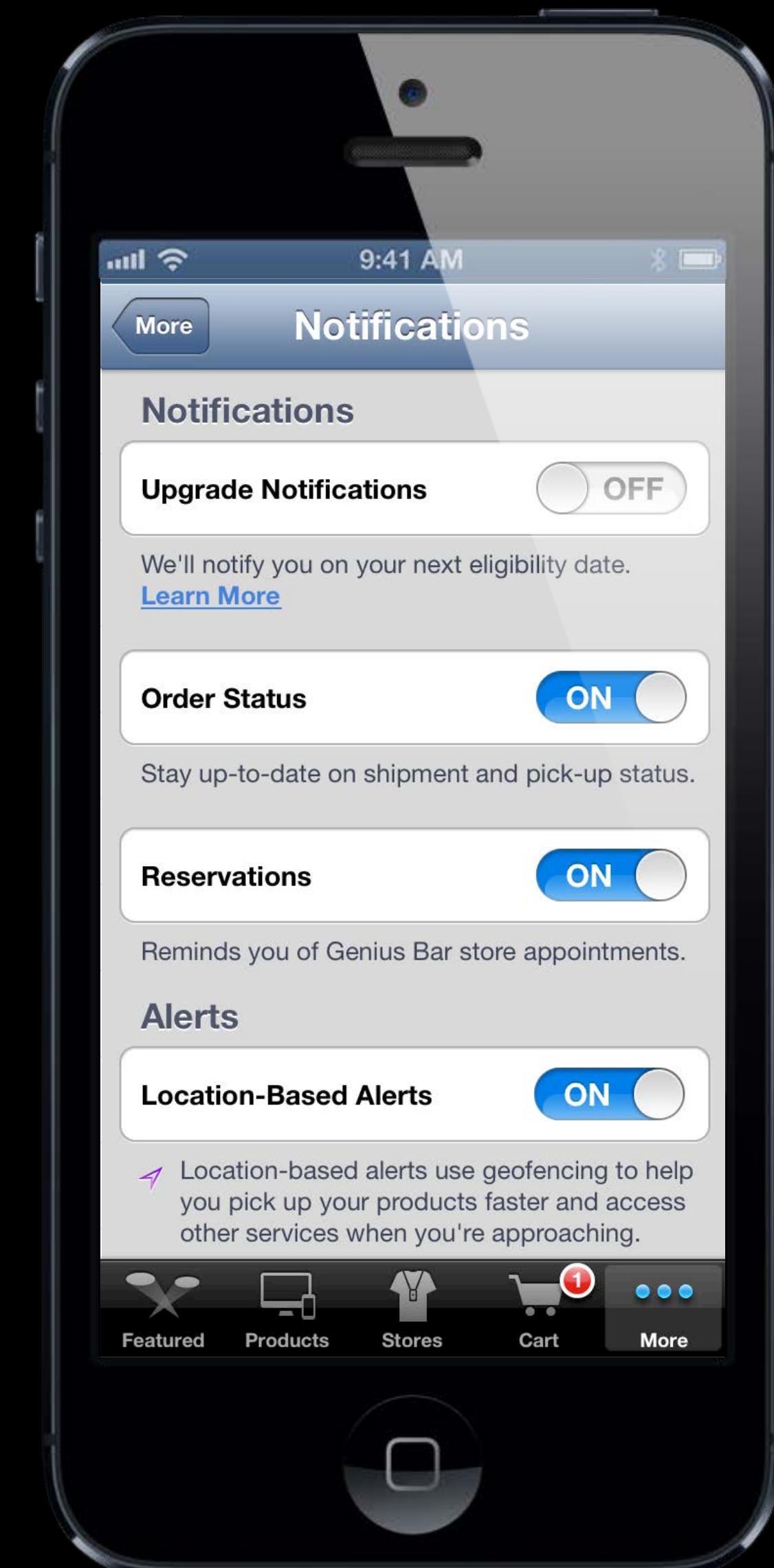
Granular In-App Notification Settings



Granular In-App Notification Settings



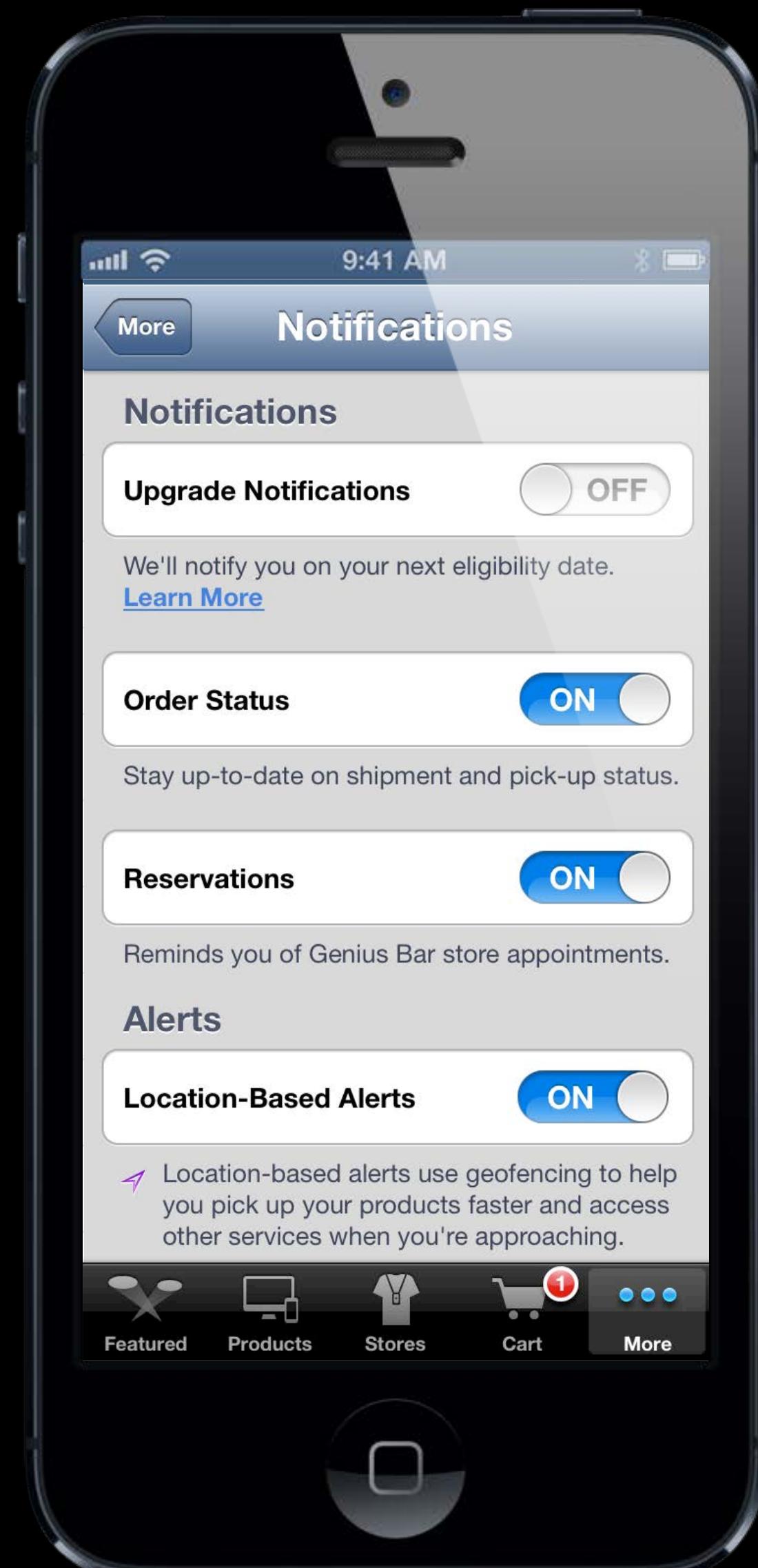
- For multiple push notification types



Granular In-App Notification Settings



- For multiple push notification types
- Reduce chance of user completely turning off app pushes



Consider the Time of Day



Consider the Time of Day



Consider the Time of Day



- Be polite
 - Find best time range to send push
 - Consider time zones



Consider the Time of Day



- Be polite
 - Find best time range to send push
 - Consider time zones
- Create a “Do Not Disturb” time window for safety
 - Do not depend on user’s DND settings
 - Set your own DND window in your push engine and use queuing



Clean Up “Dead” Tokens



Clean Up “Dead” Tokens



Clean Up “Dead” Tokens



- Query the Apple Push Notification feedback service
 - `feedback.push.apple.com:2196`



Clean Up “Dead” Tokens



- Query the Apple Push Notification feedback service
 - `feedback.push.apple.com:2196`
- Read the list of invalid push tokens
 - The list is cleared when you read it



Clean Up “Dead” Tokens



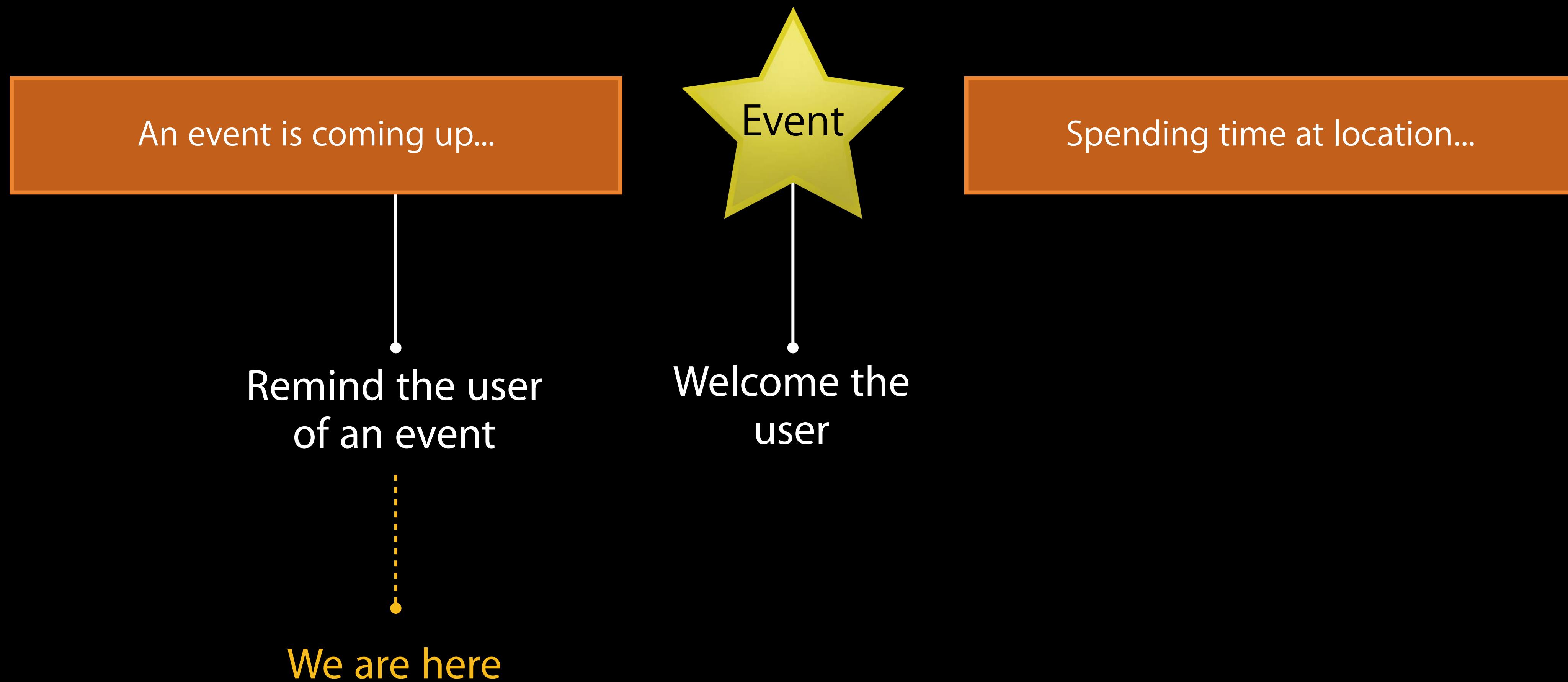
- Query the Apple Push Notification feedback service
 - `feedback.push.apple.com:2196`
- Read the list of invalid push tokens
 - The list is cleared when you read it
- Stop using these tokens



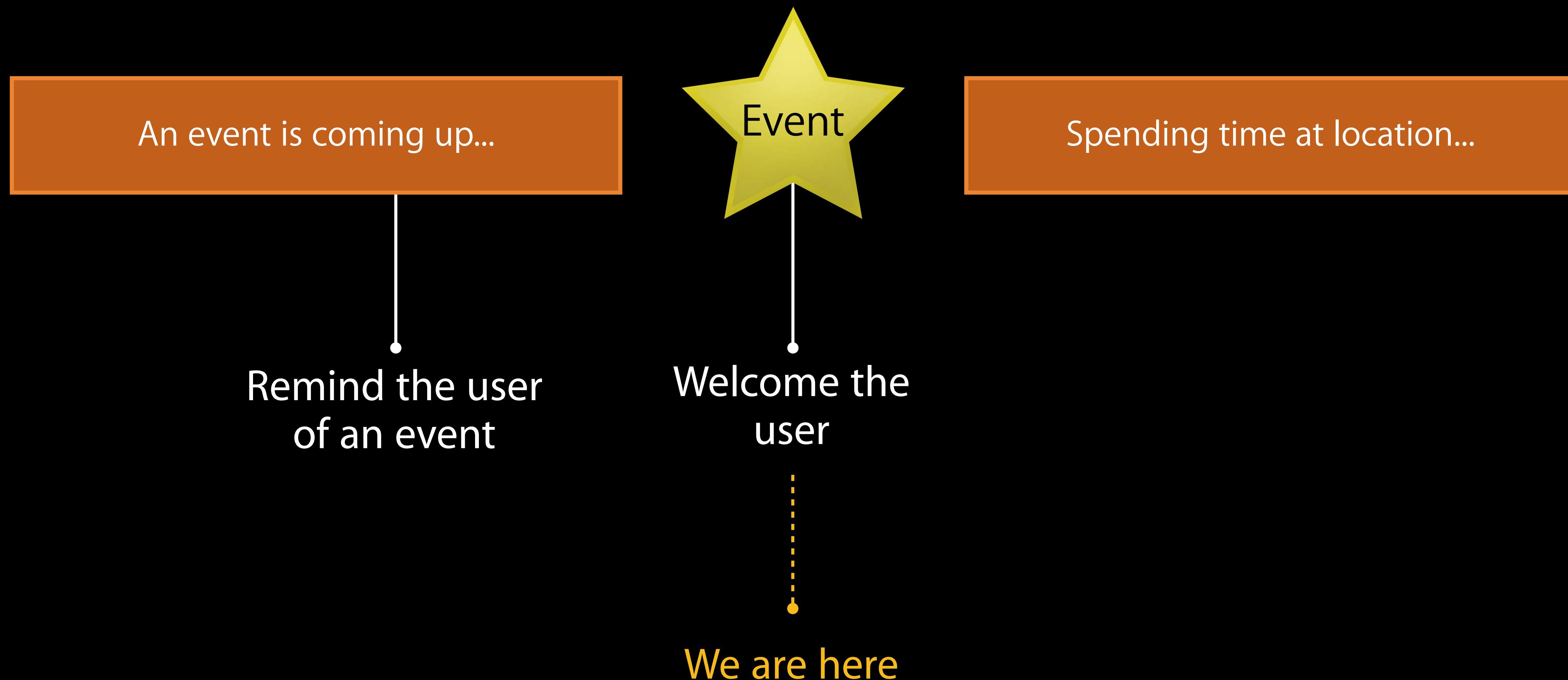
Arriving at Your Event

Welcome your users

Agenda



Agenda

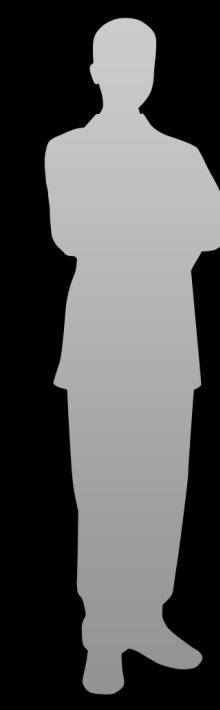




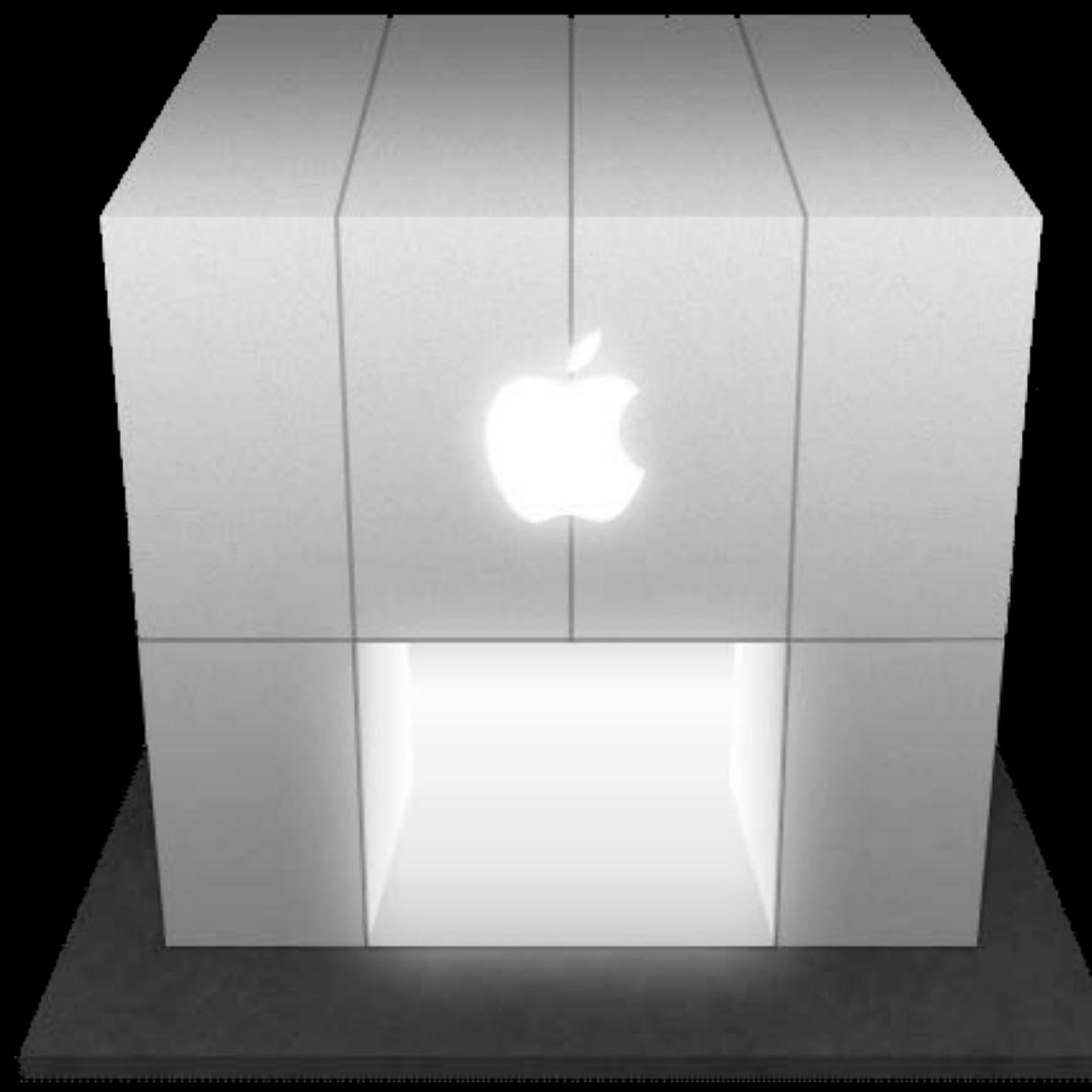




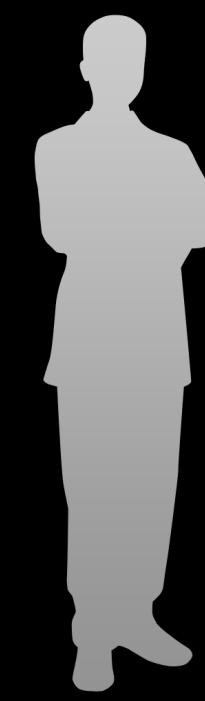
Storefront Pickup



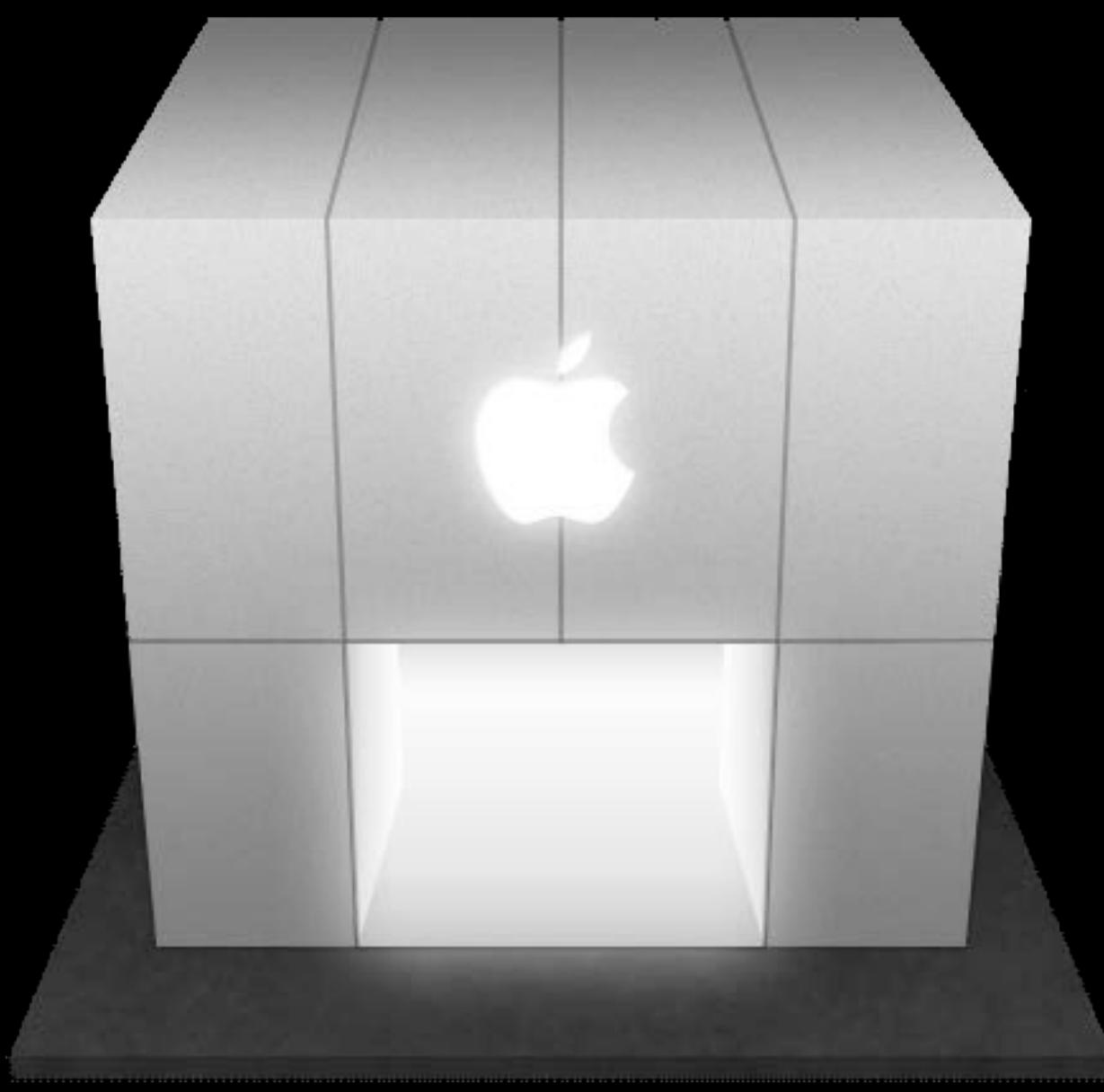
John



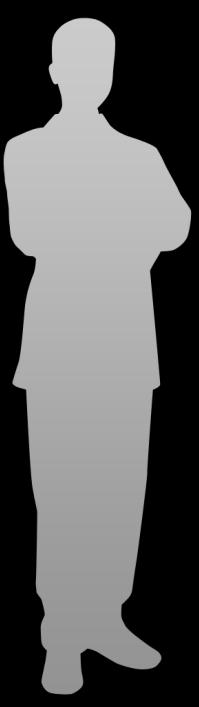
Upper West Side

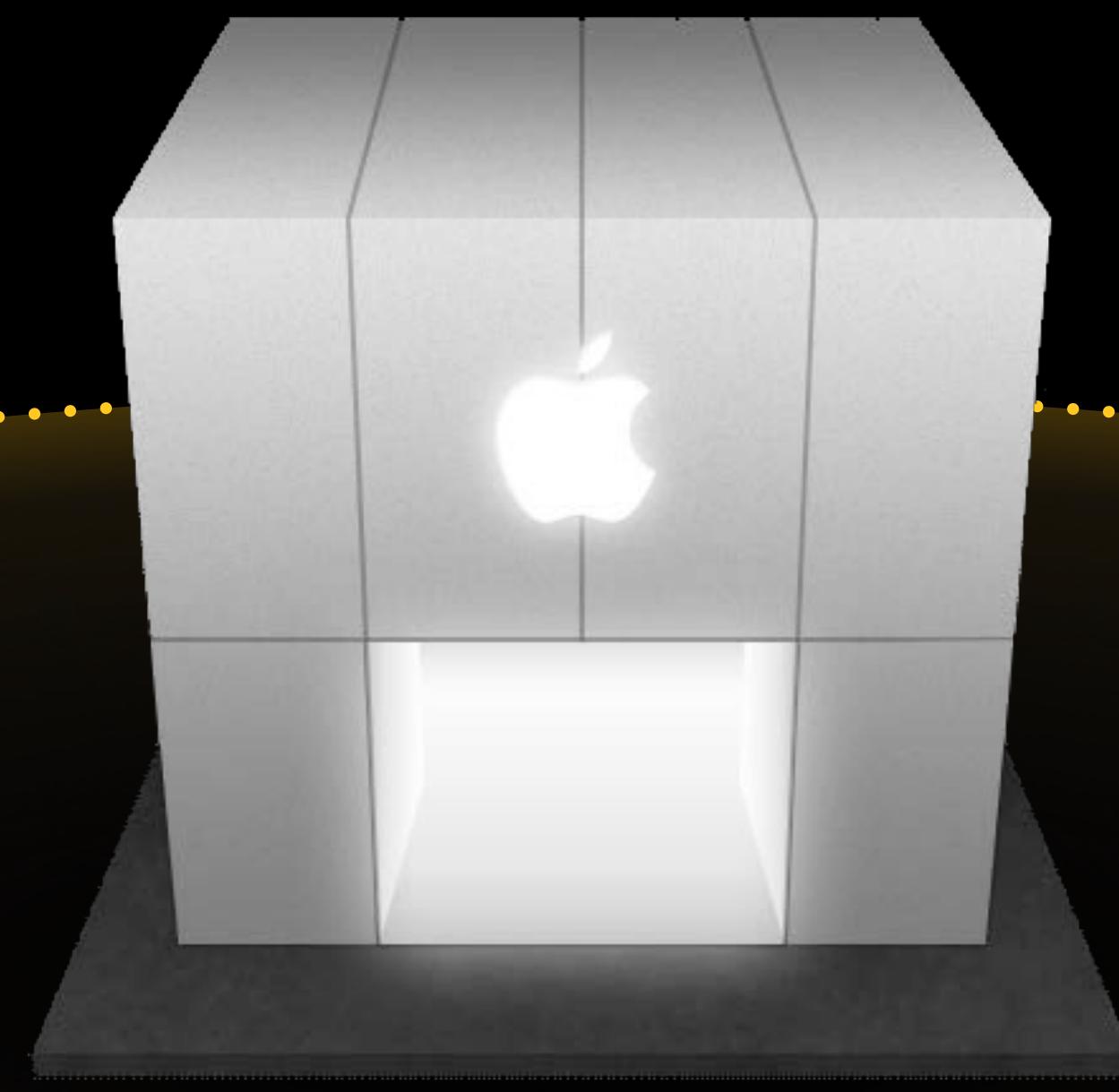
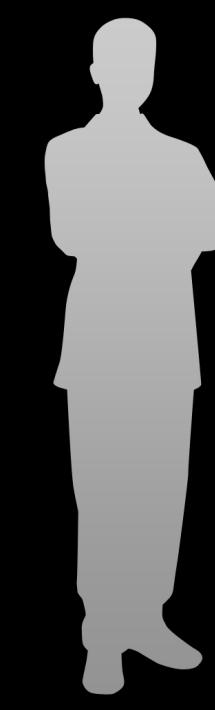


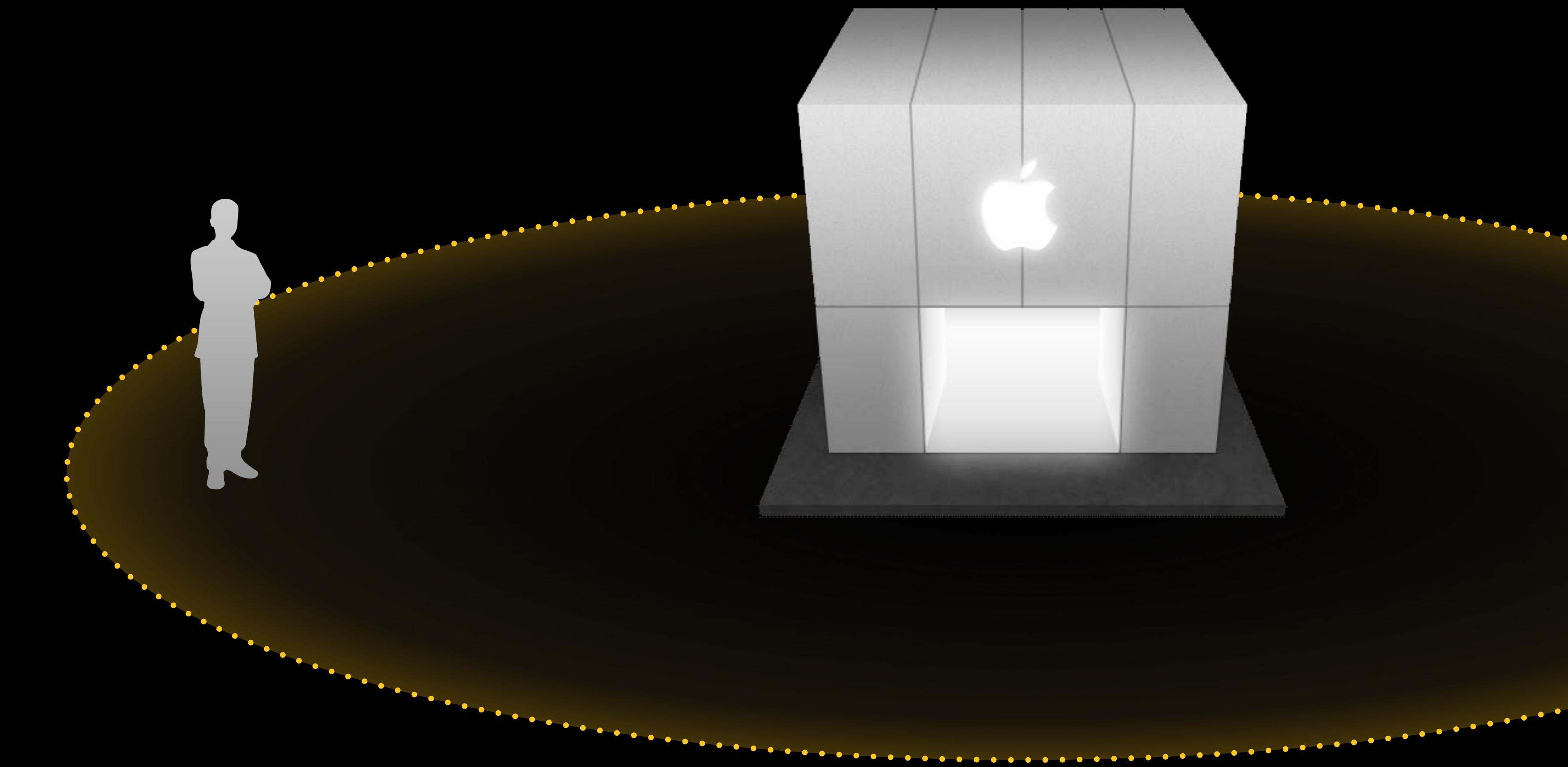
John has an order ready for pickup
at Upper West Side

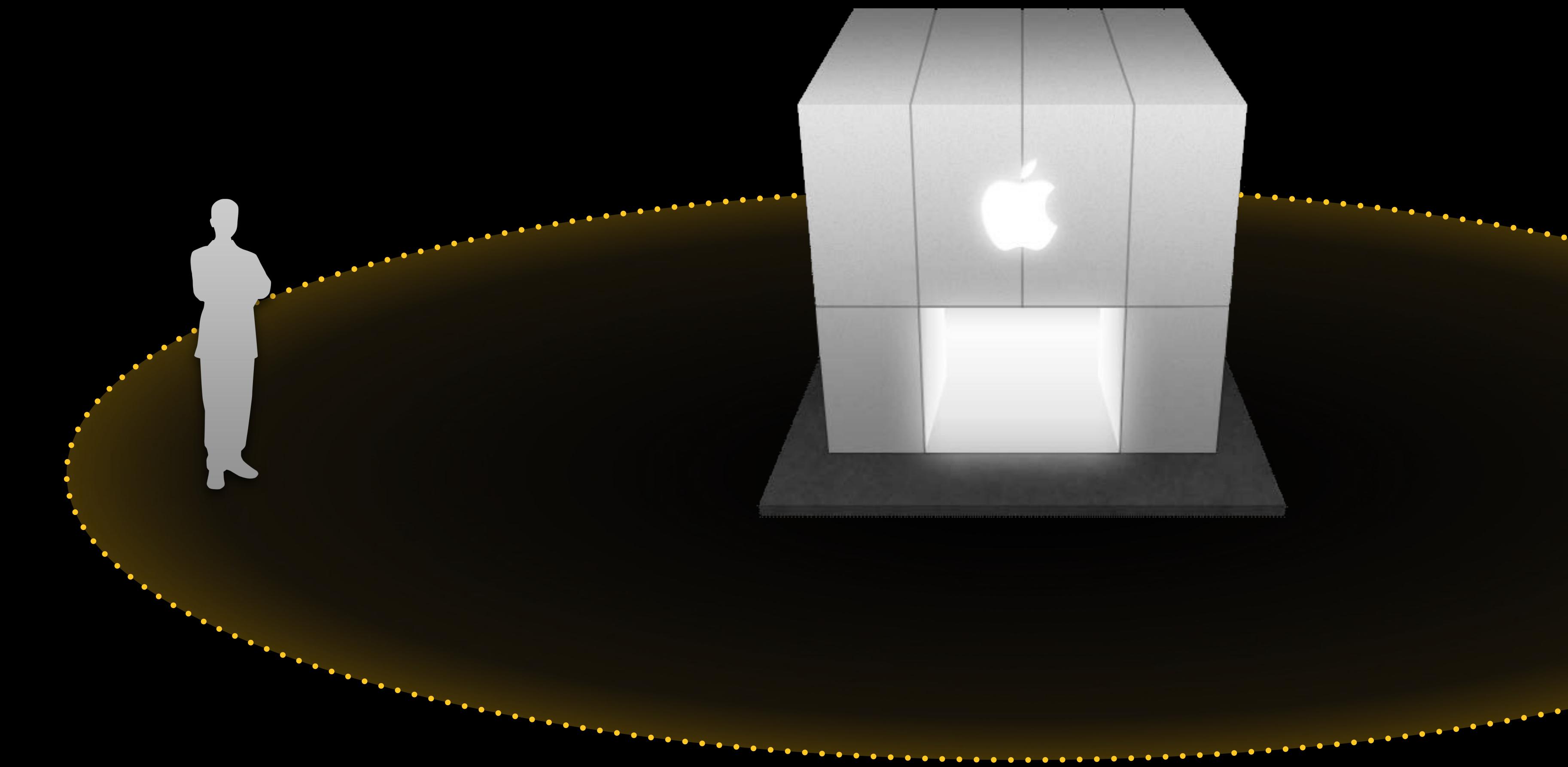


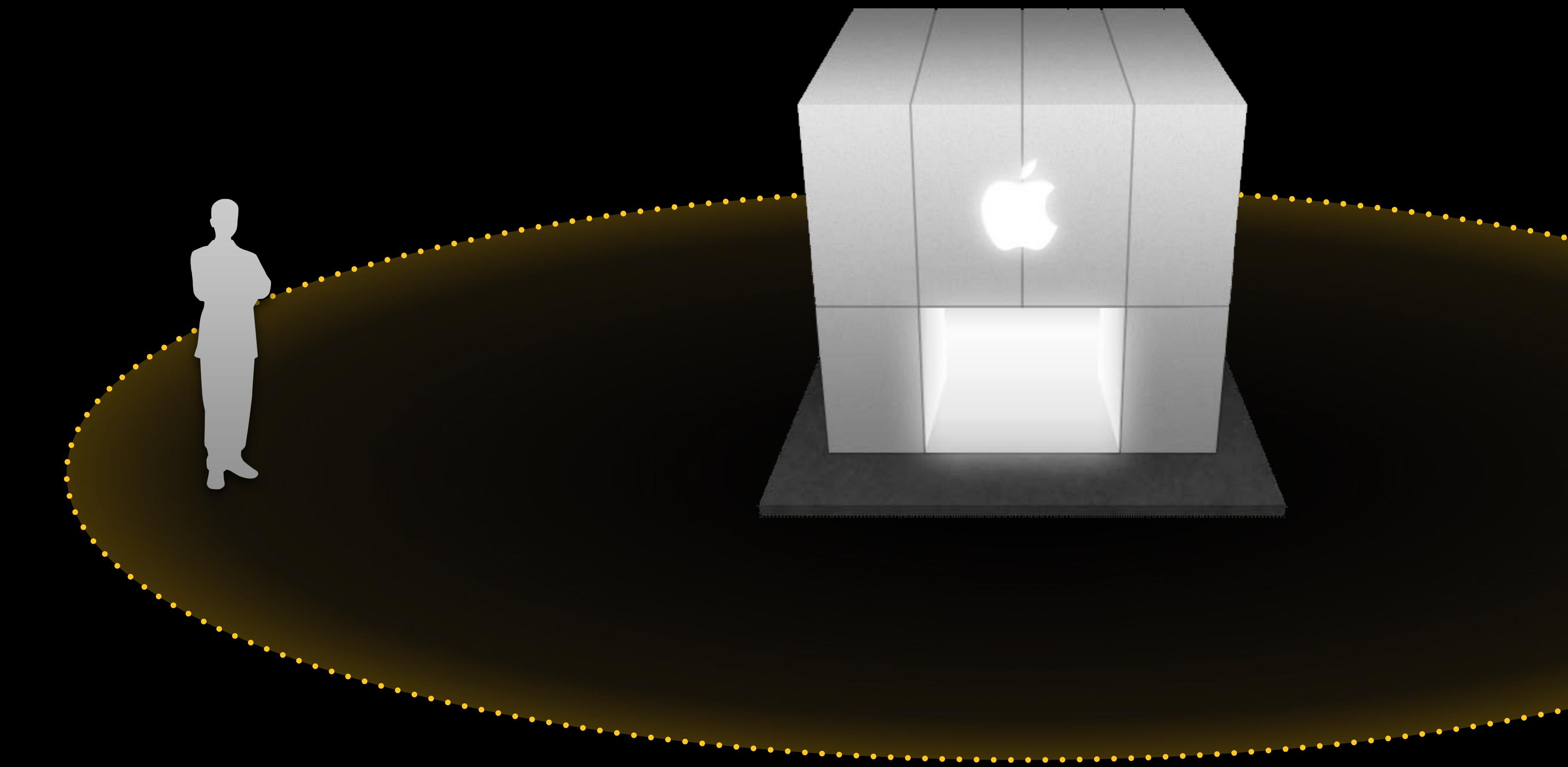
Upper West Side

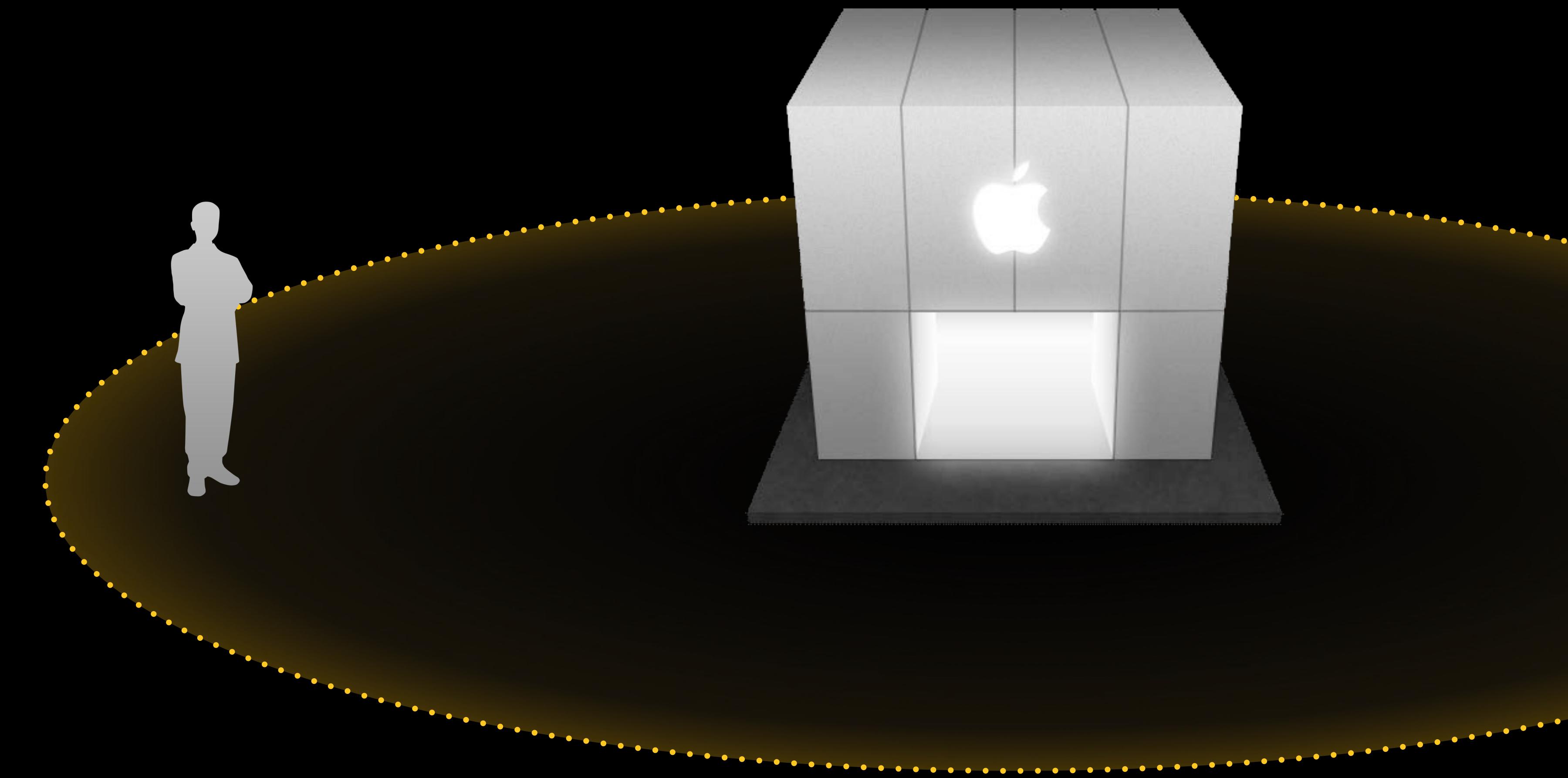
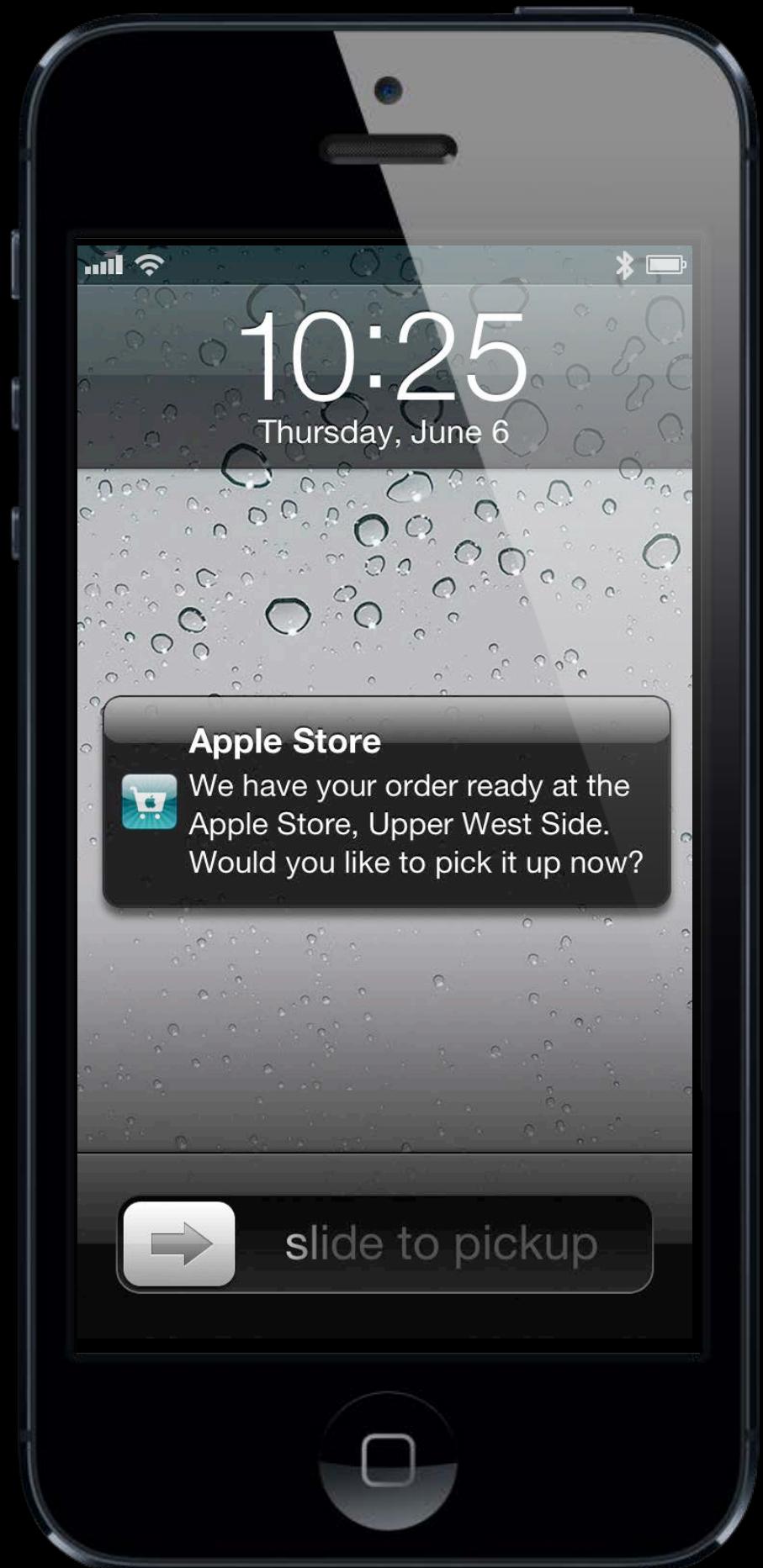


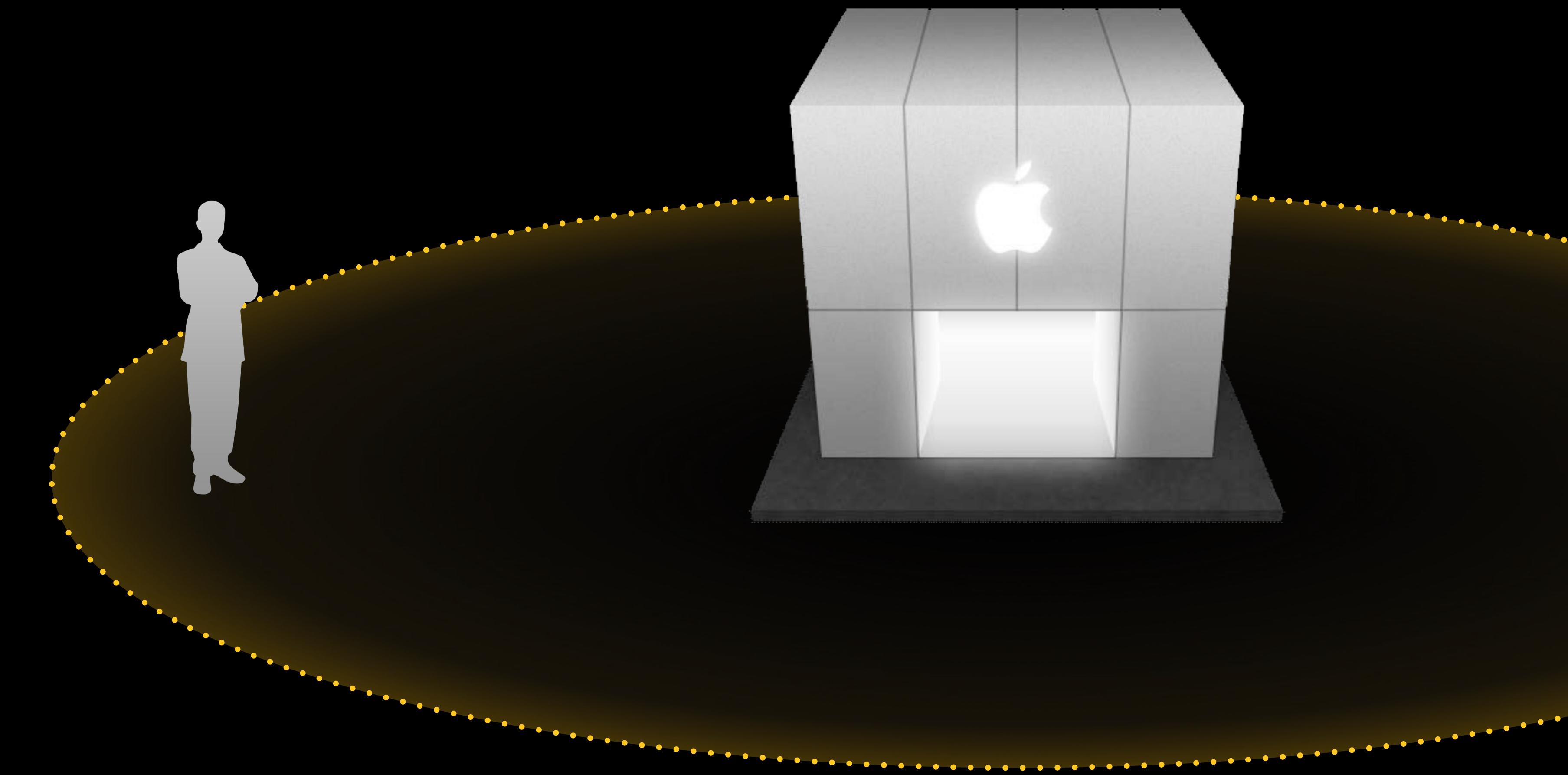
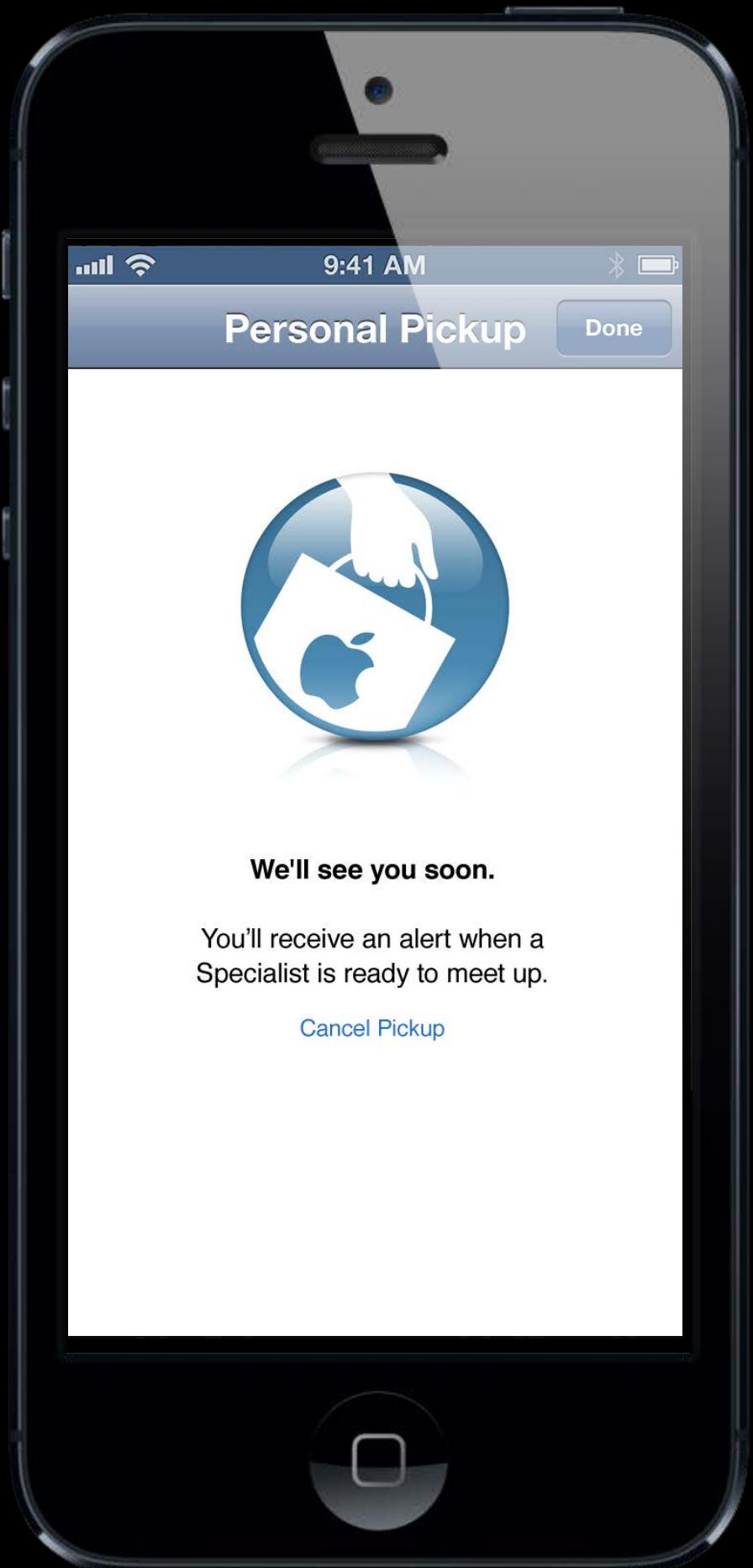


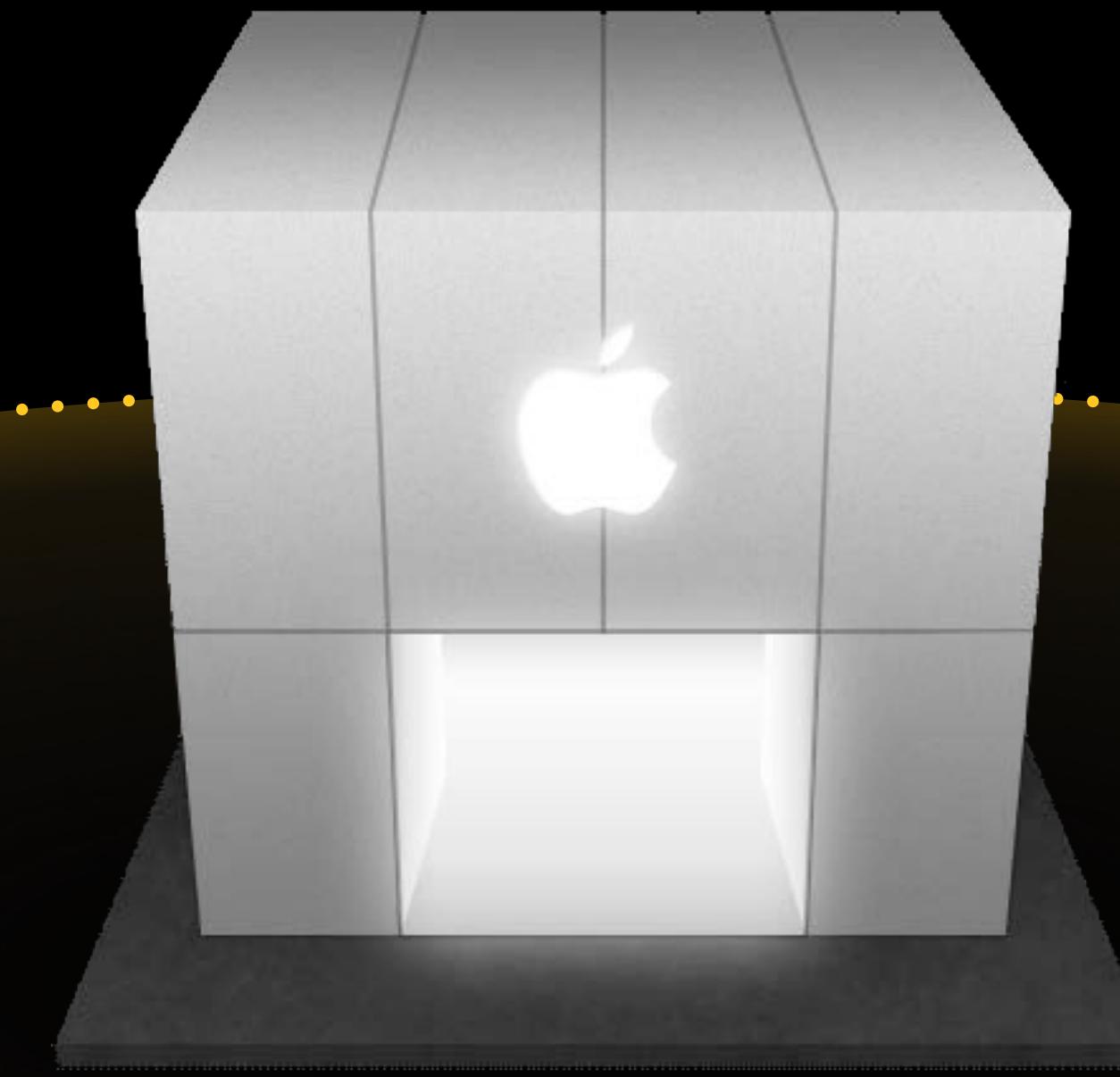


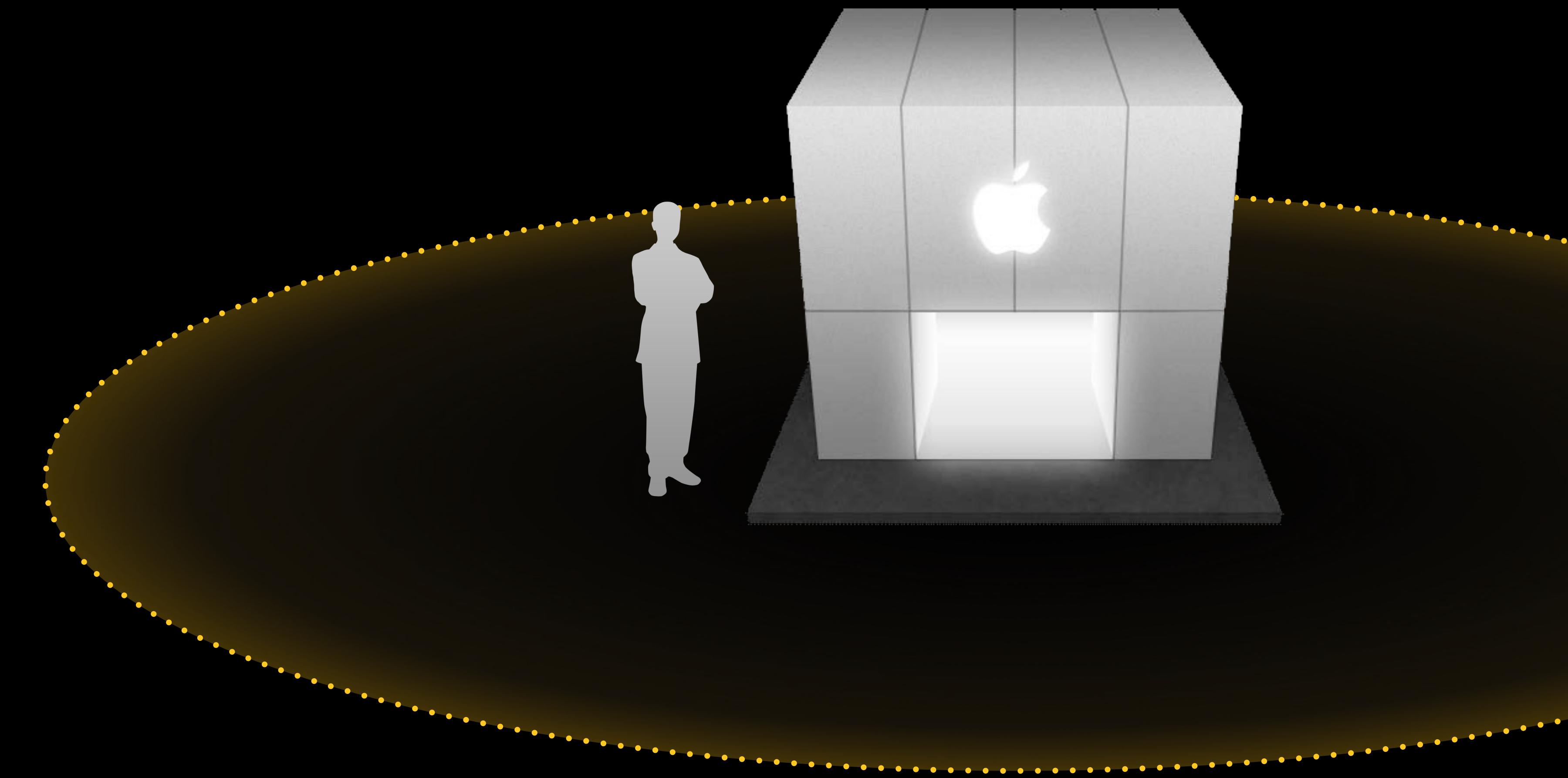


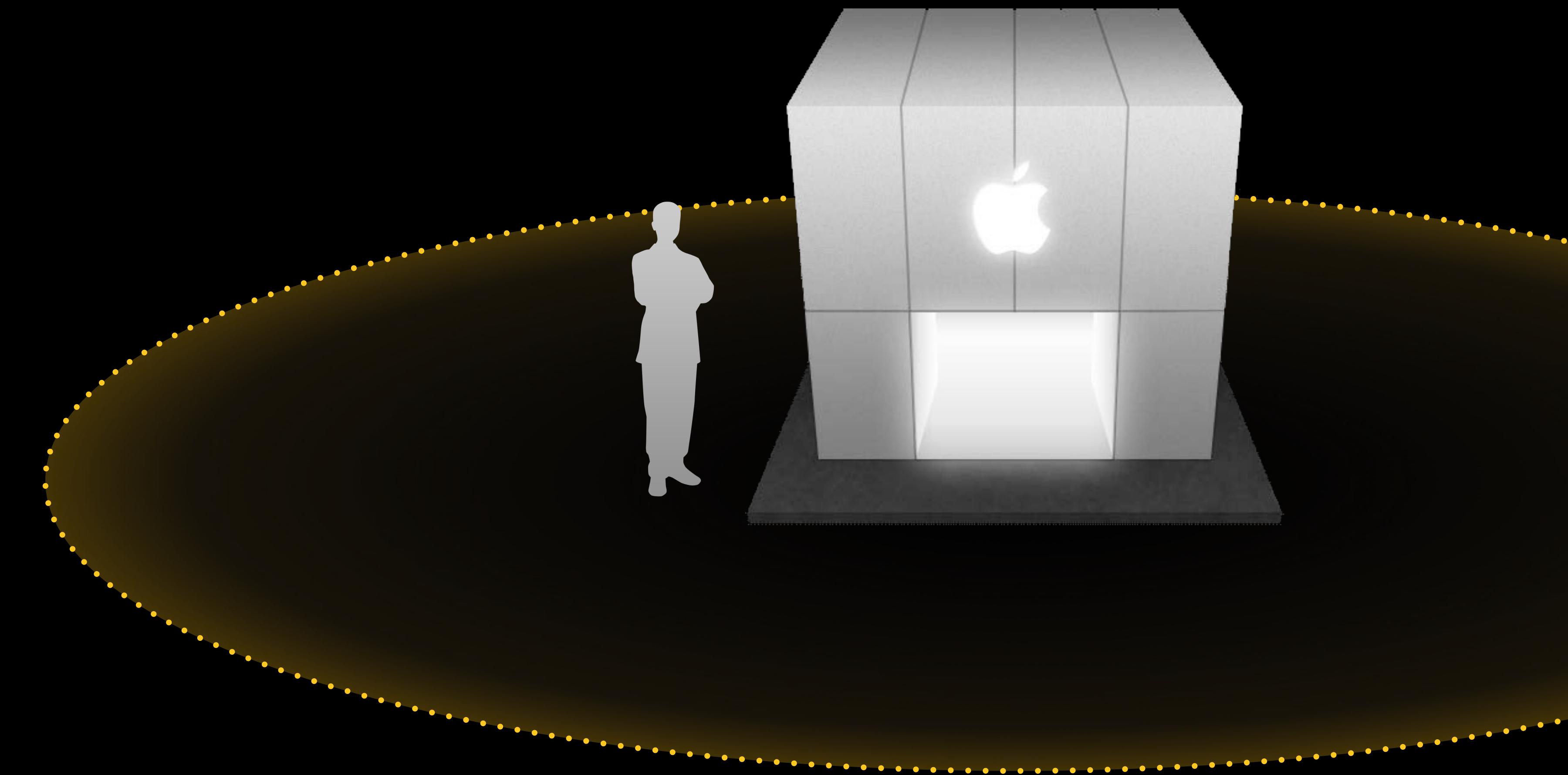
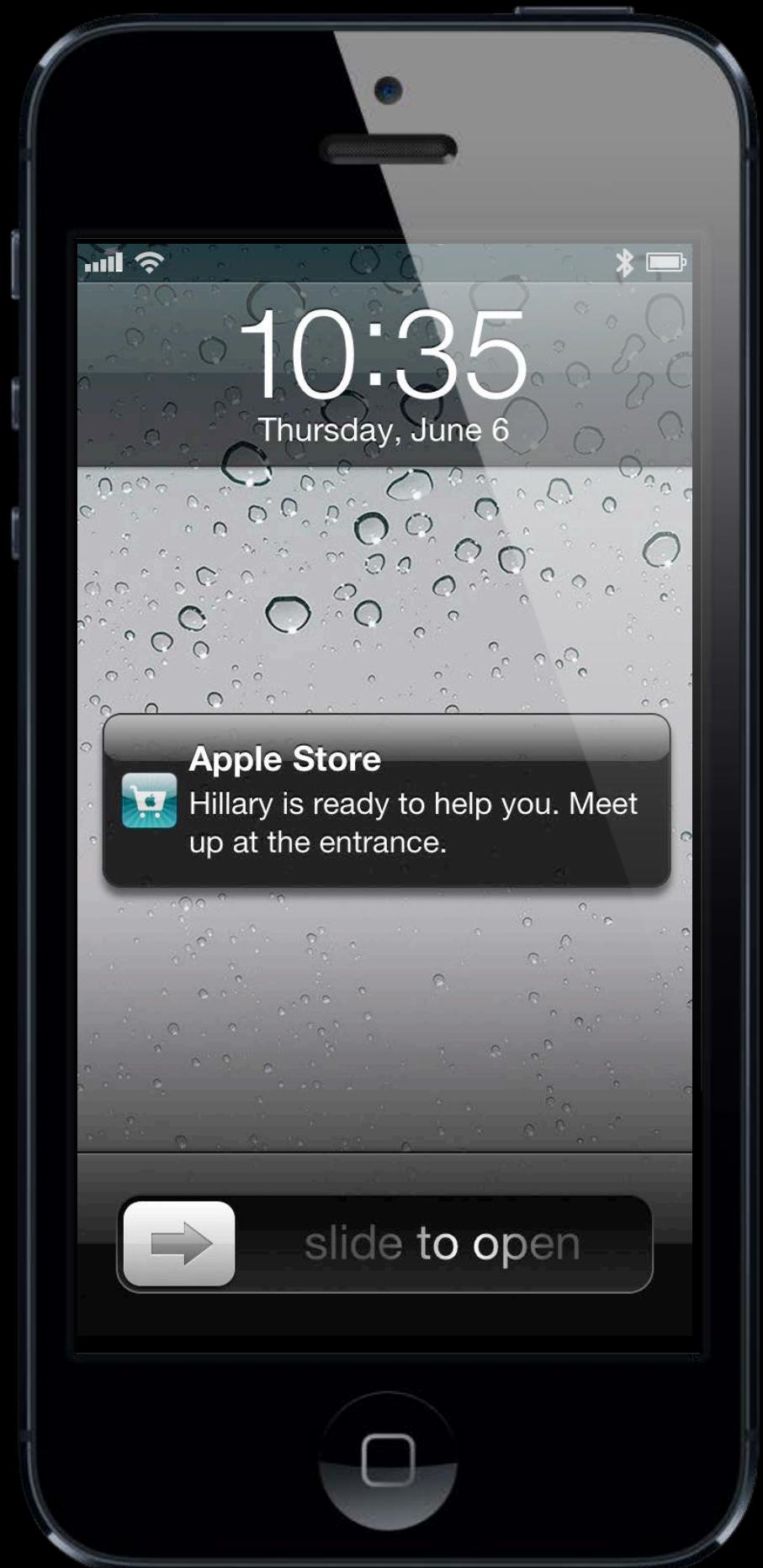


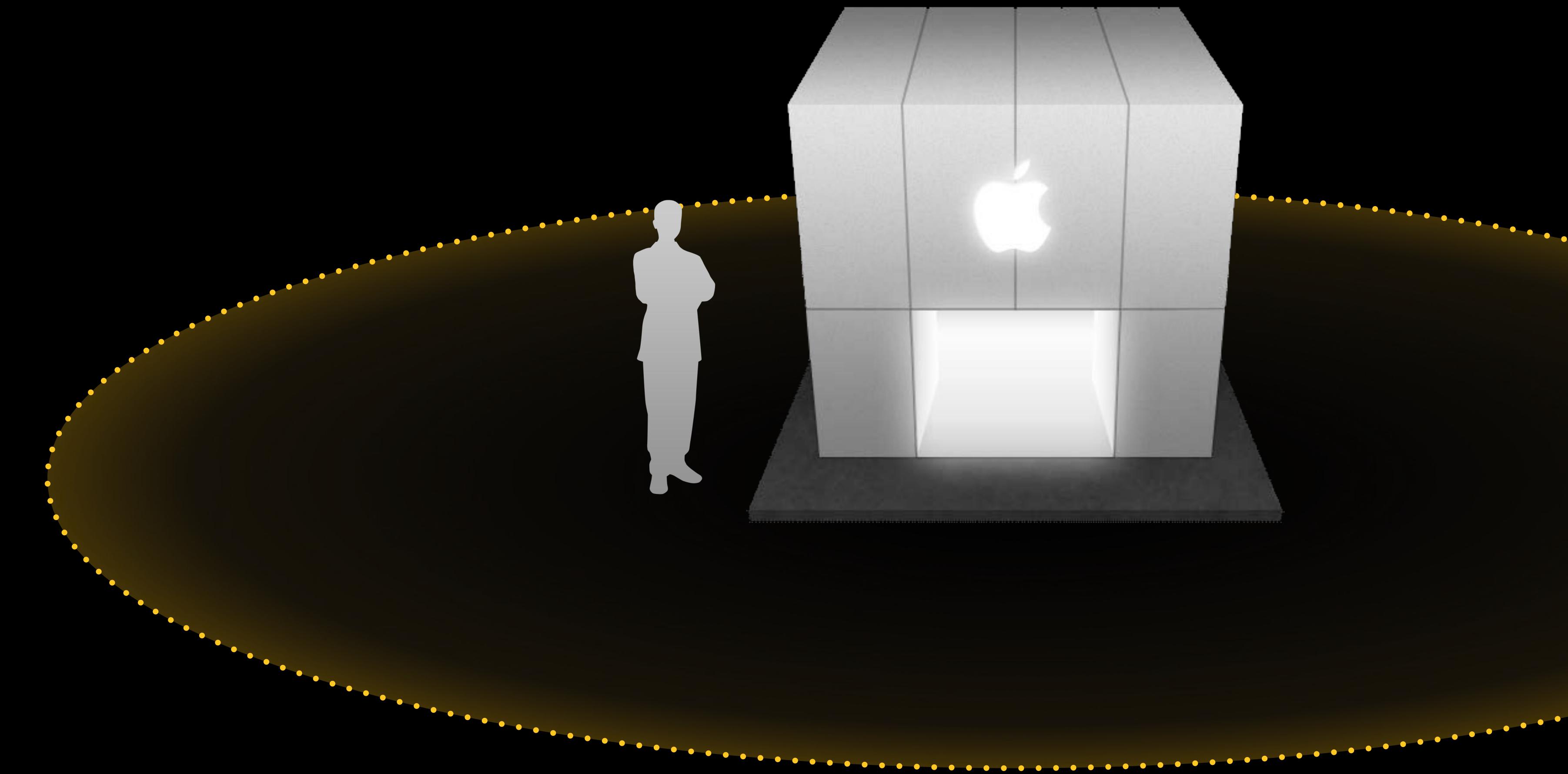
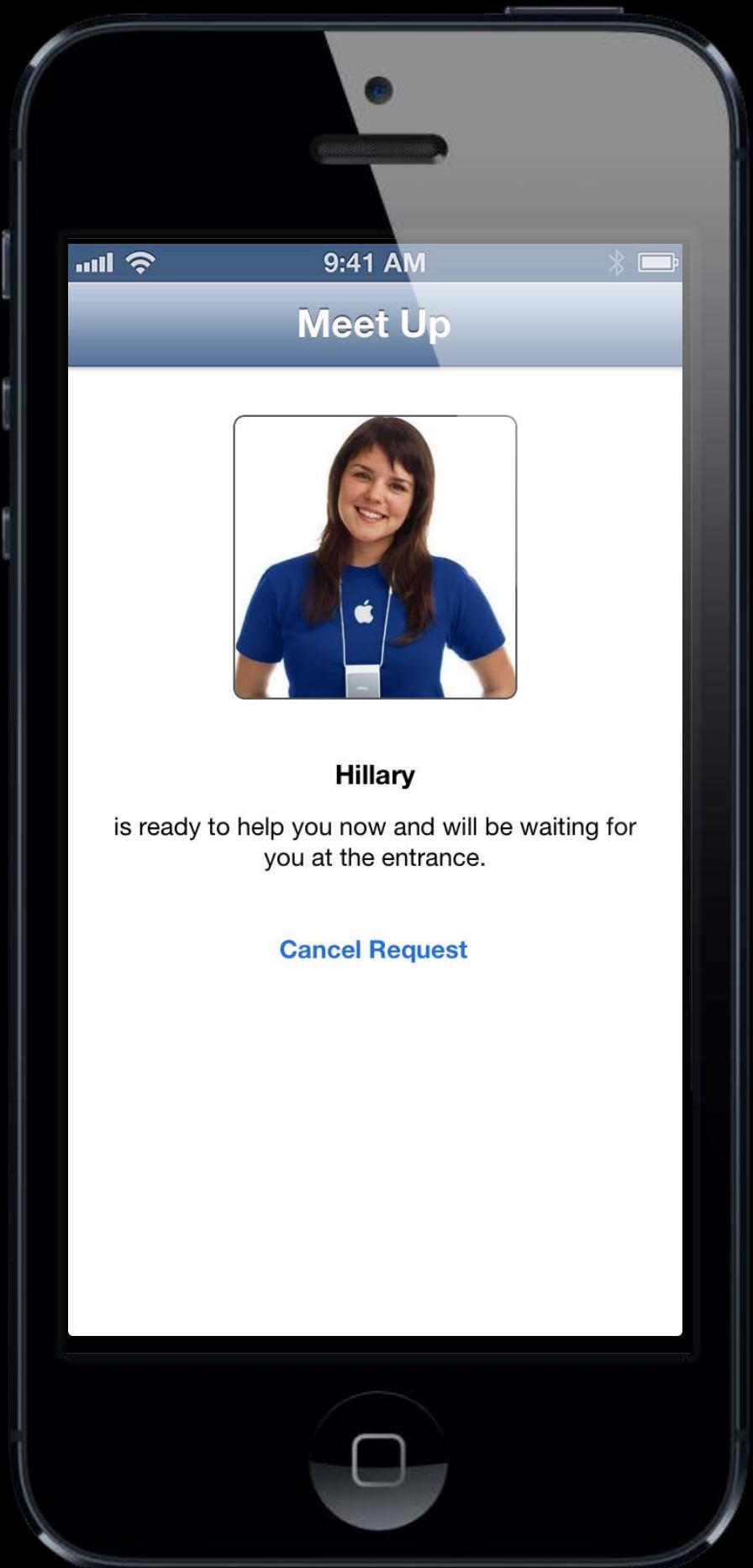


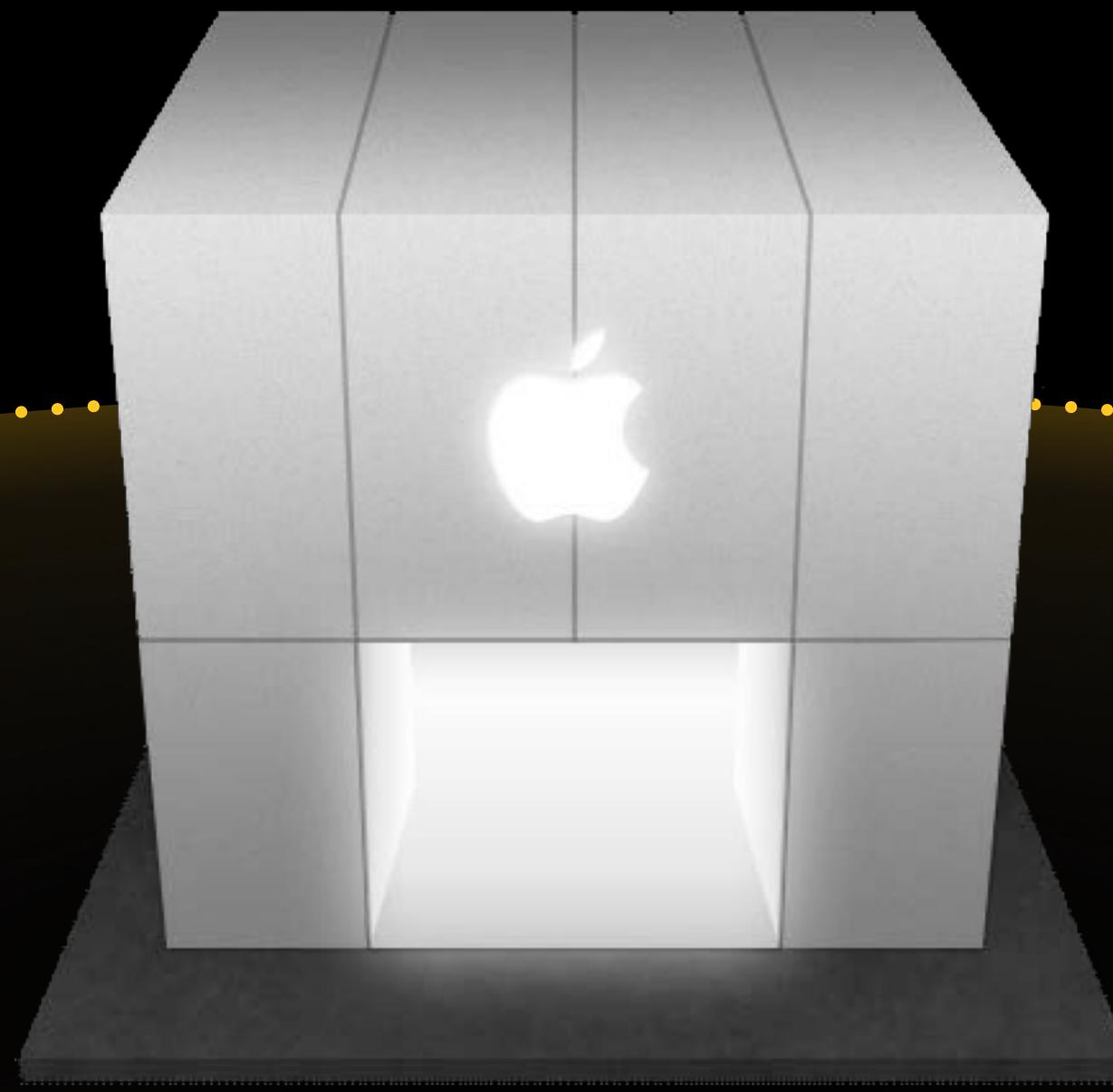
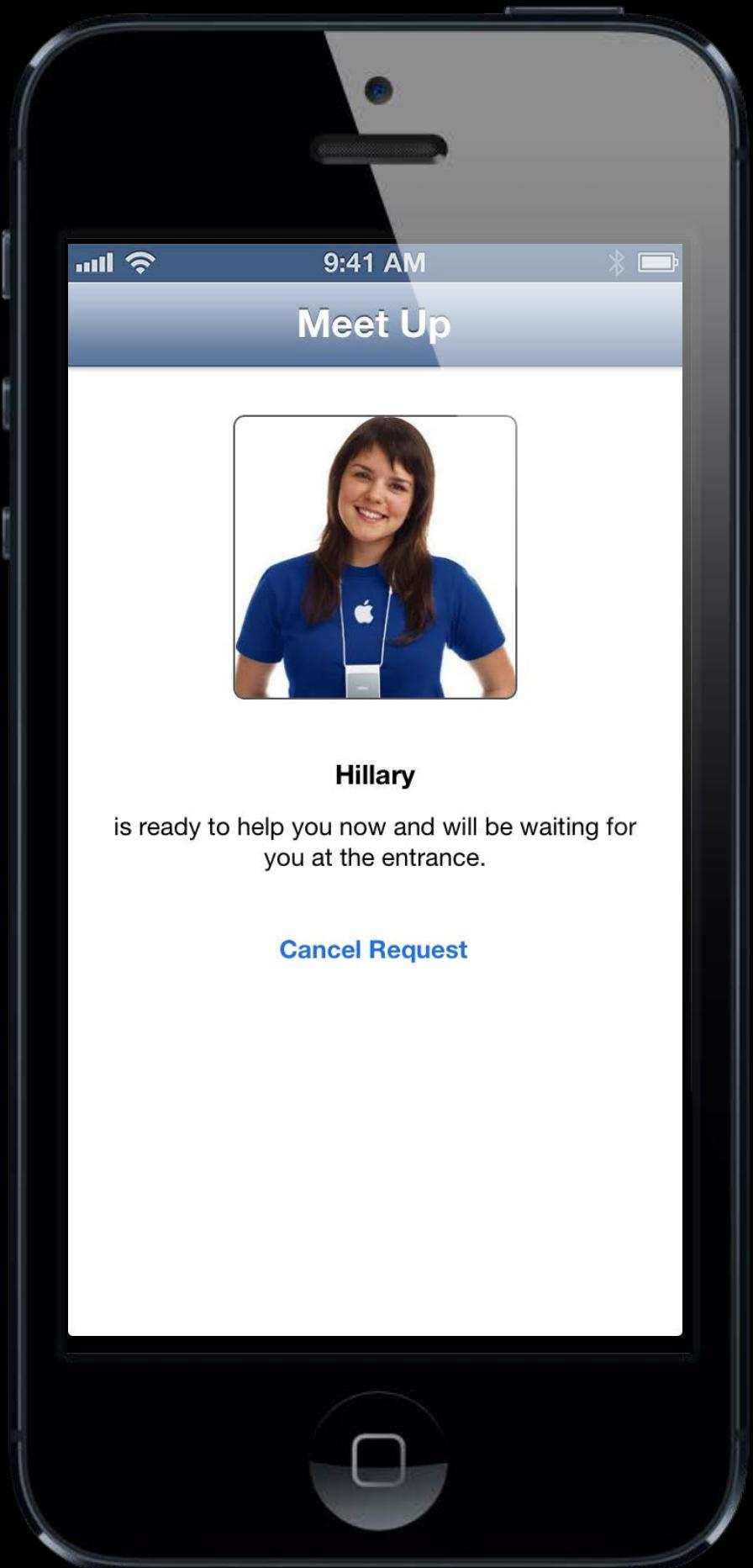


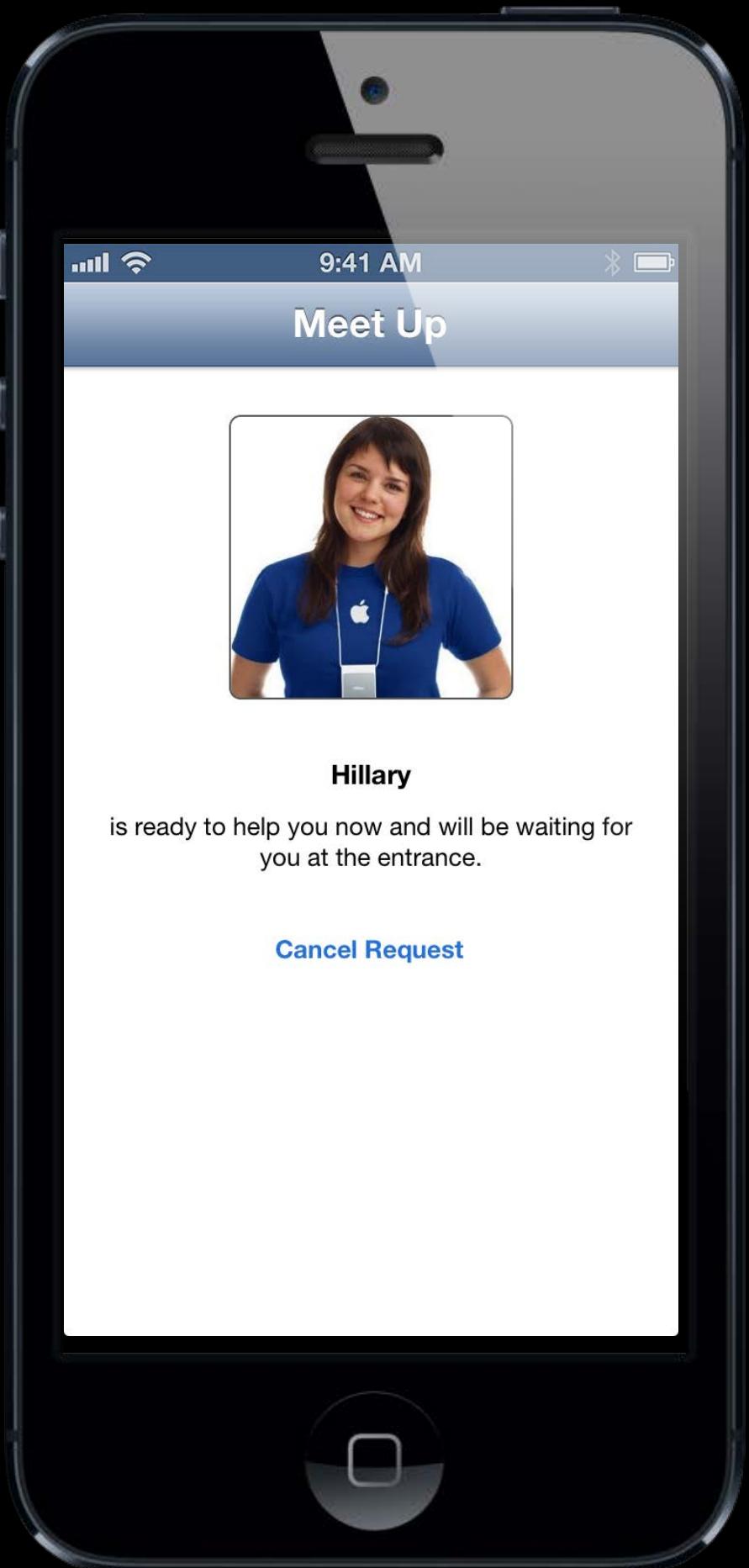


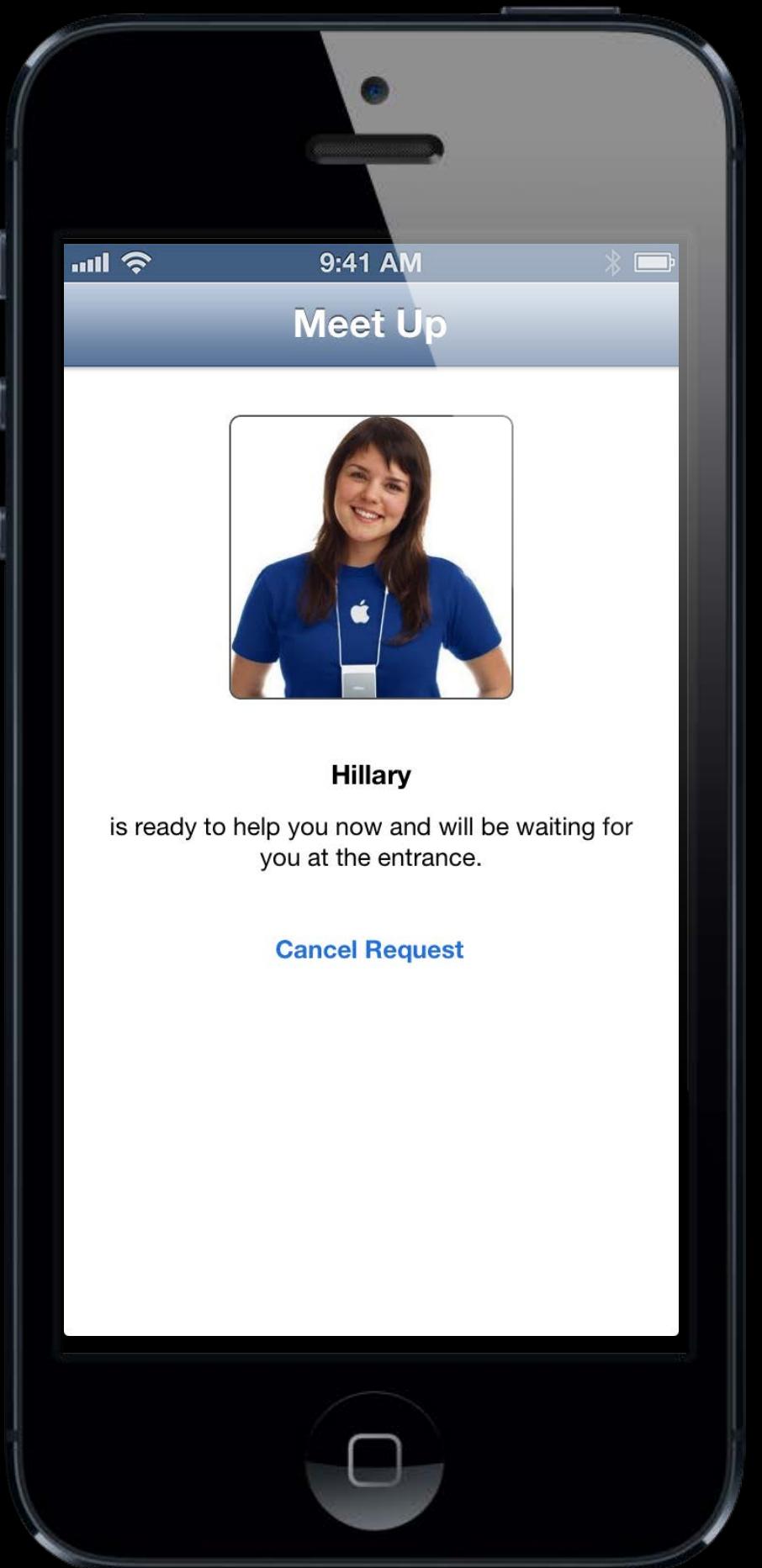












Region Monitoring



Region Monitoring



Region Monitoring



- Register with Core Location to monitor regions of interest
 - [CLLocationManager startMonitoringForRegion:]



Region Monitoring



- Register with Core Location to monitor regions of interest
 - [CLLocationManager startMonitoringForRegion:]
- Core Location wakes your app and notifies delegates
 - locationManager:didEnterRegion:
 - locationManager:didDetermineState:forRegion:



Region Monitoring



- Register with Core Location to monitor regions of interest
 - [CLLocationManager startMonitoringForRegion:]
- Core Location wakes your app and notifies delegates
 - locationManager:didEnterRegion:
 - locationManager:didDetermineState:forRegion:
- Post local notification if appropriate
 - [UIApplication scheduleLocalNotification:]
 - [UIApplication presentLocalNotificationNow:]



Tips, Tricks And Best Practices

Minimize Battery Drain



Minimize Battery Drain



Minimize Battery Drain



- Background code and server calls use up power



Minimize Battery Drain



- Background code and server calls use up power
- Minimize background code on wake
 - Employ safety checks—cache server data, use time stamps, etc.



Minimize Battery Drain



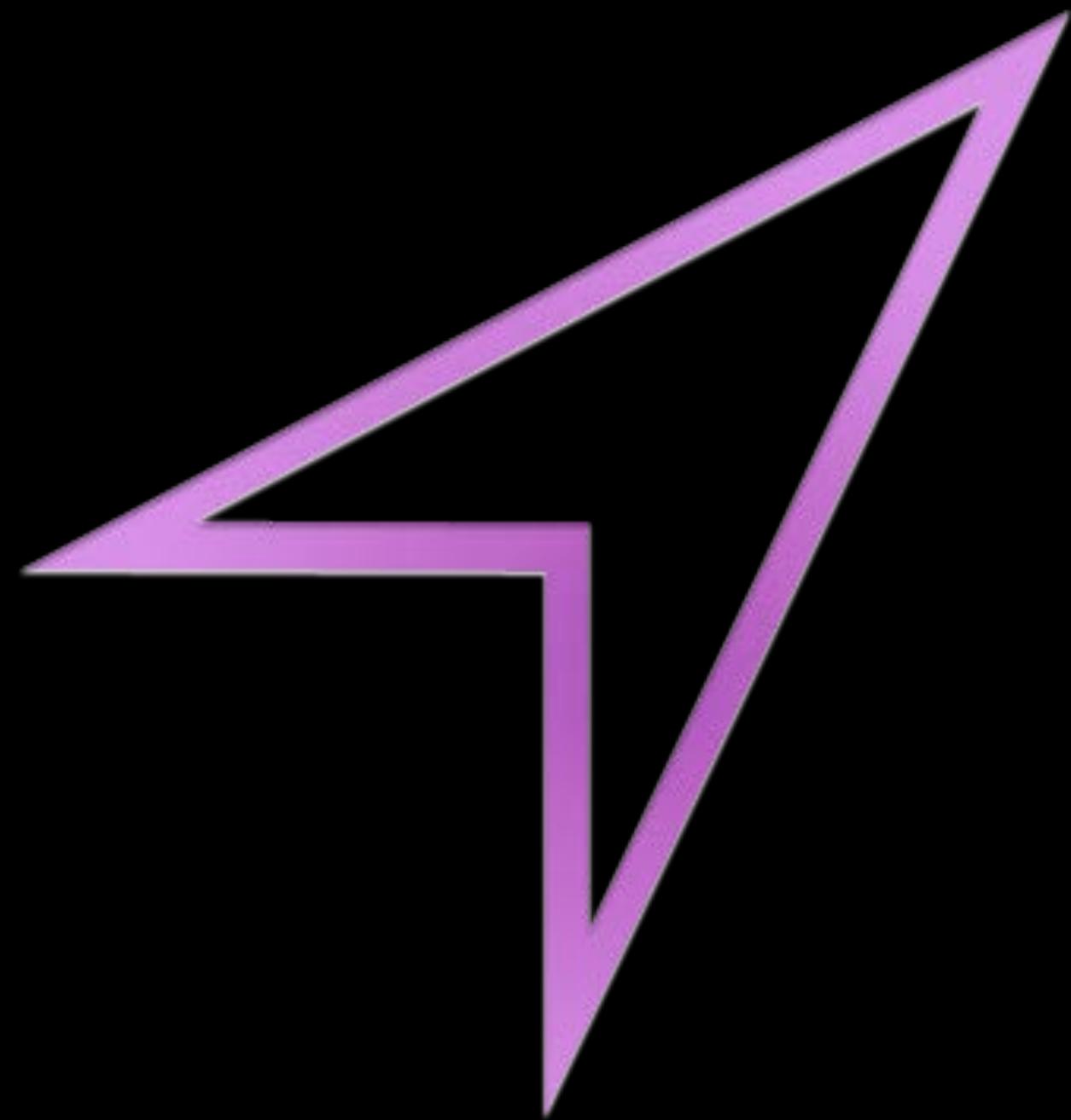
- Background code and server calls use up power
- Minimize background code on wake
 - Employ safety checks—cache server data, use time stamps, etc.
- Significant testing required
 - Both in Instruments and real life



Consider Privacy



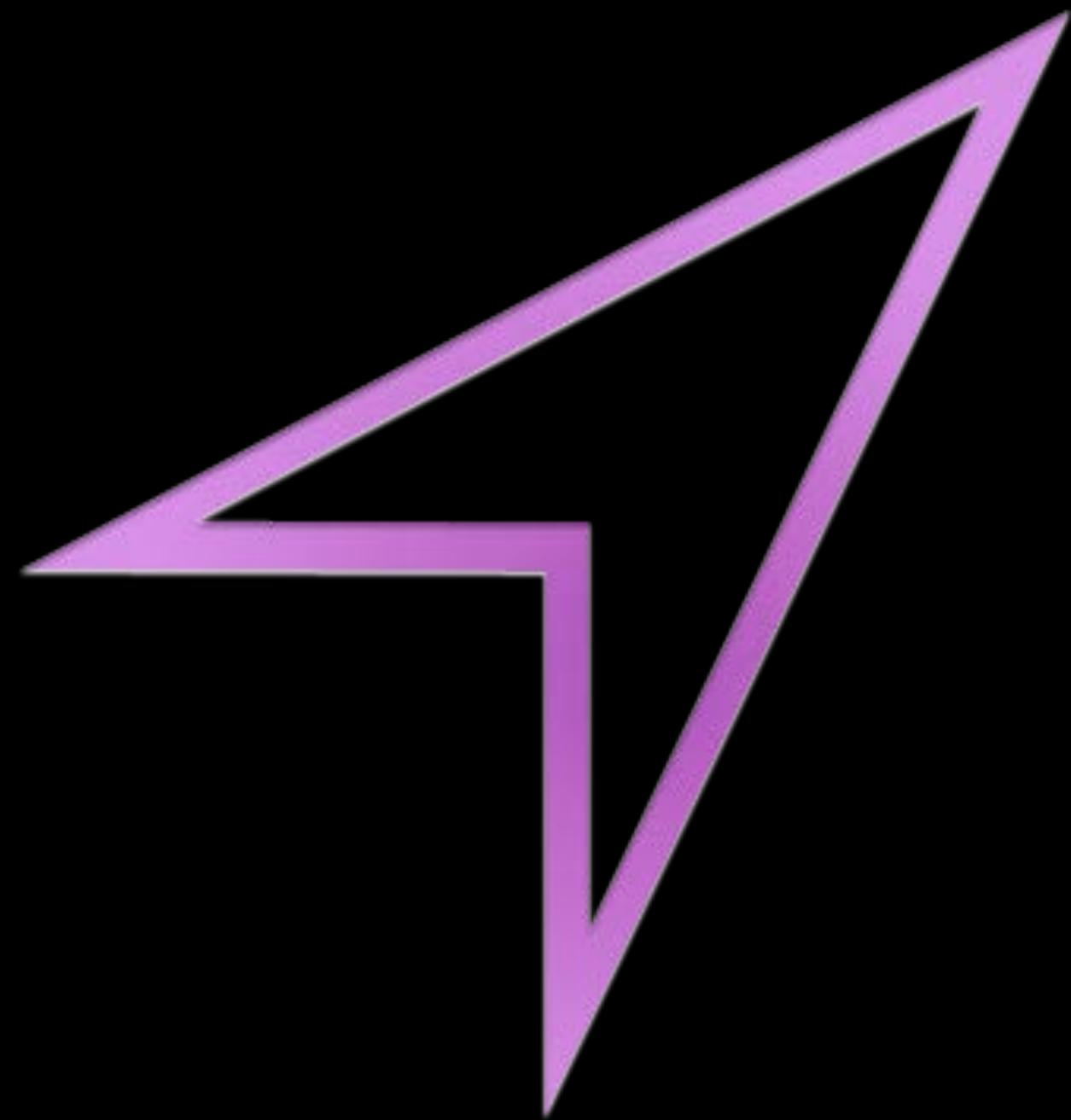
Consider Privacy



Consider Privacy



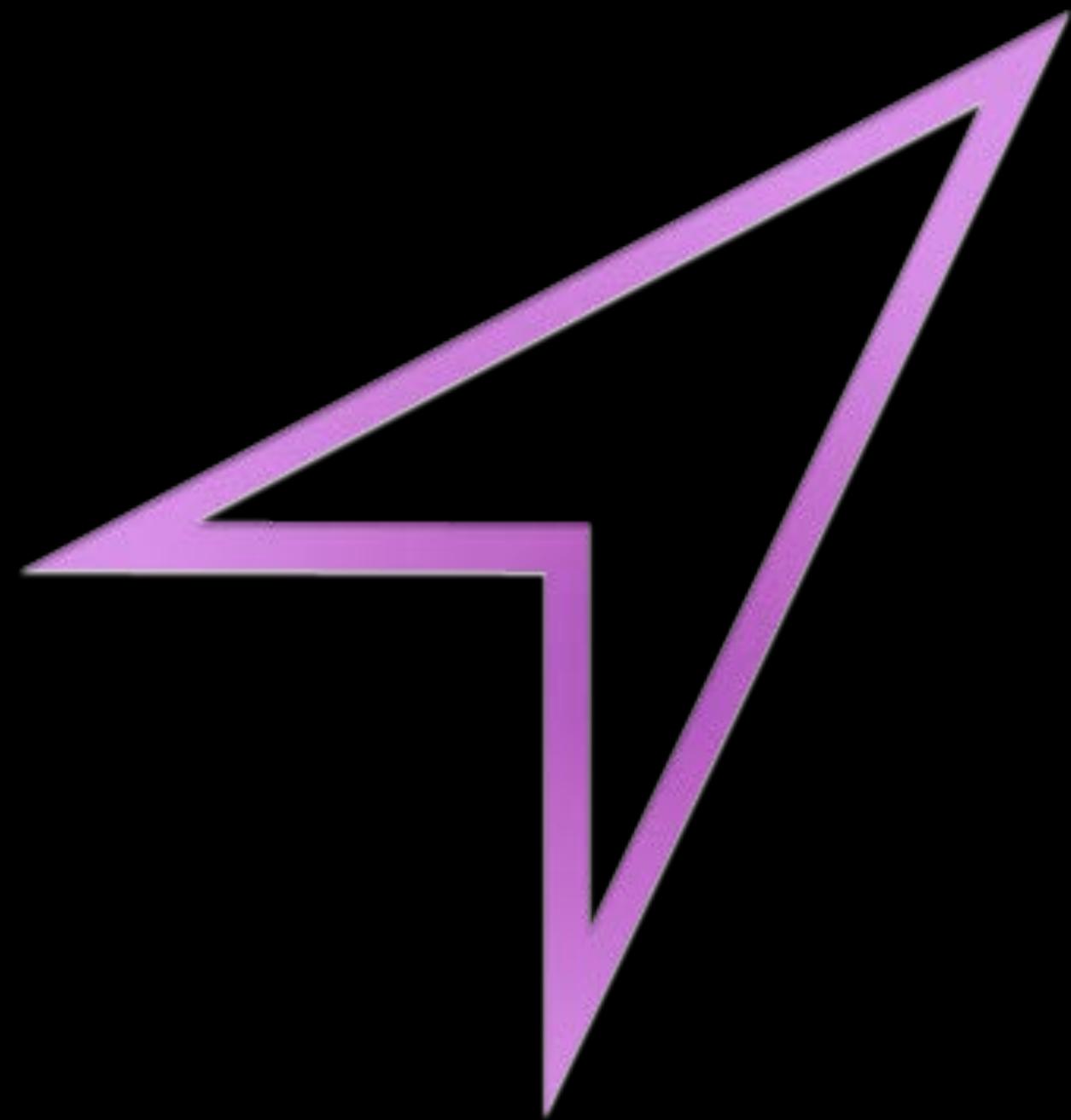
- User perception of location arrow
 - “You know where I am”
 - “You are draining my battery”



Consider Privacy



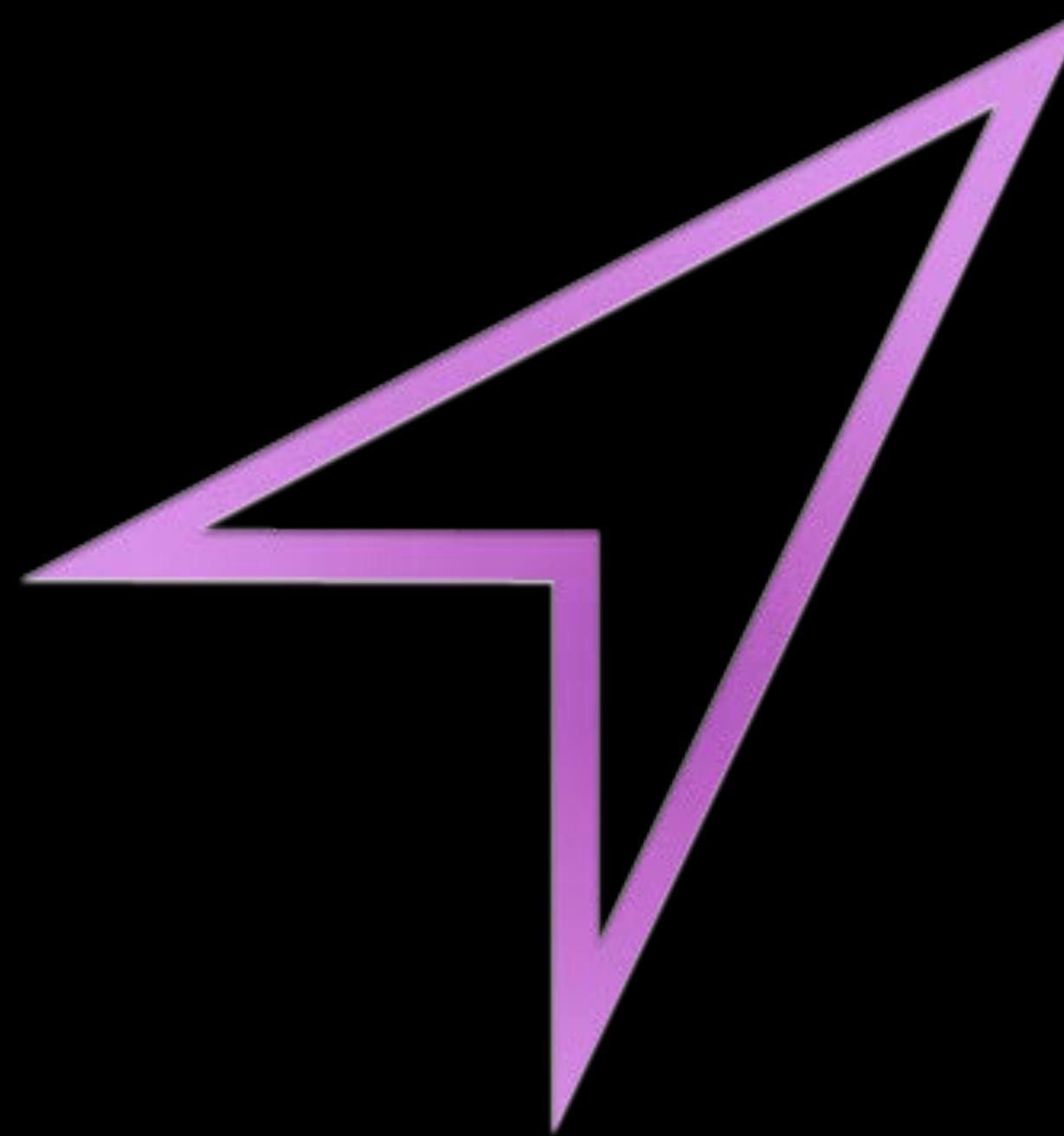
- User perception of location arrow
 - “You know where I am”
 - “You are draining my battery”
- Be upfront with your users



Consider Privacy



- User perception of location arrow
 - “You know where I am”
 - “You are draining my battery”
- Be upfront with your users
- Monitor location only as needed
 - Minimize the arrow



Handle Multiple Regions



Handle Multiple Regions



Handle Multiple Regions



- iOS allows you 20 regions to monitor



Handle Multiple Regions



- iOS allows you 20 regions to monitor
- To start monitoring
 - Use user's current location and register nearby locations
 - Allow ZIP code option in case of user traveling



Handle Multiple Regions



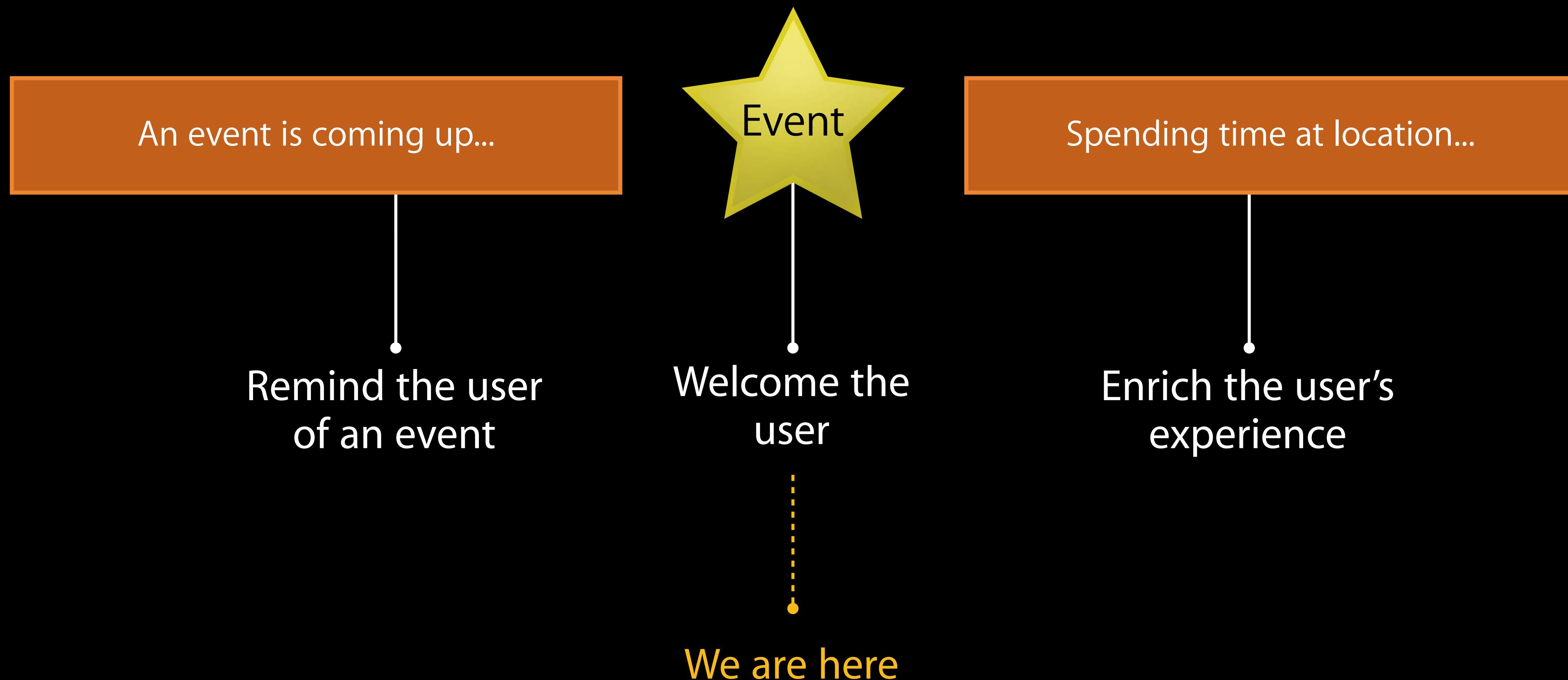
- iOS allows you 20 regions to monitor
- To start monitoring
 - Use user's current location and register nearby locations
 - Allow ZIP code option in case of user traveling
- To update regions
 - Perform when app is awake
 - Use Significant Location Change when app is in background



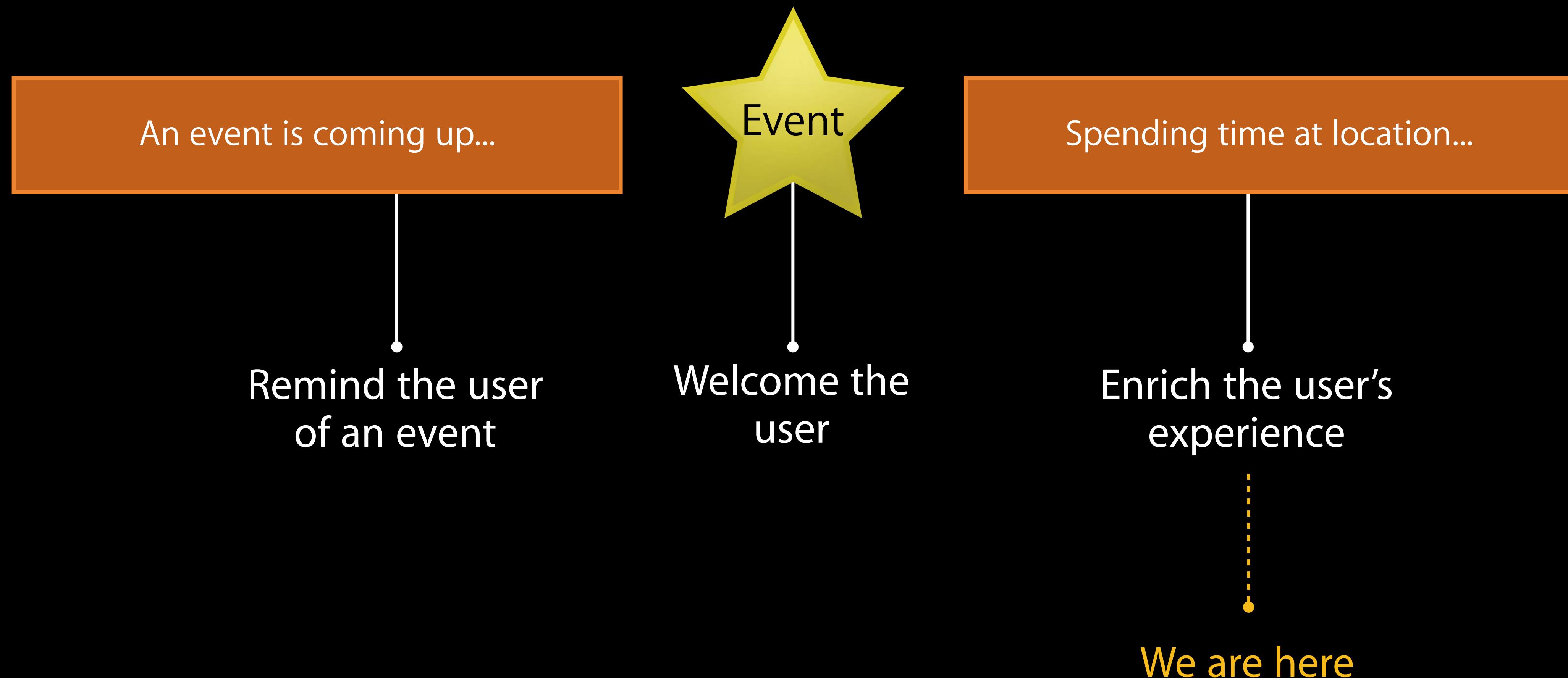
Spending Time at Your Location

Enrich the user experience

Agenda



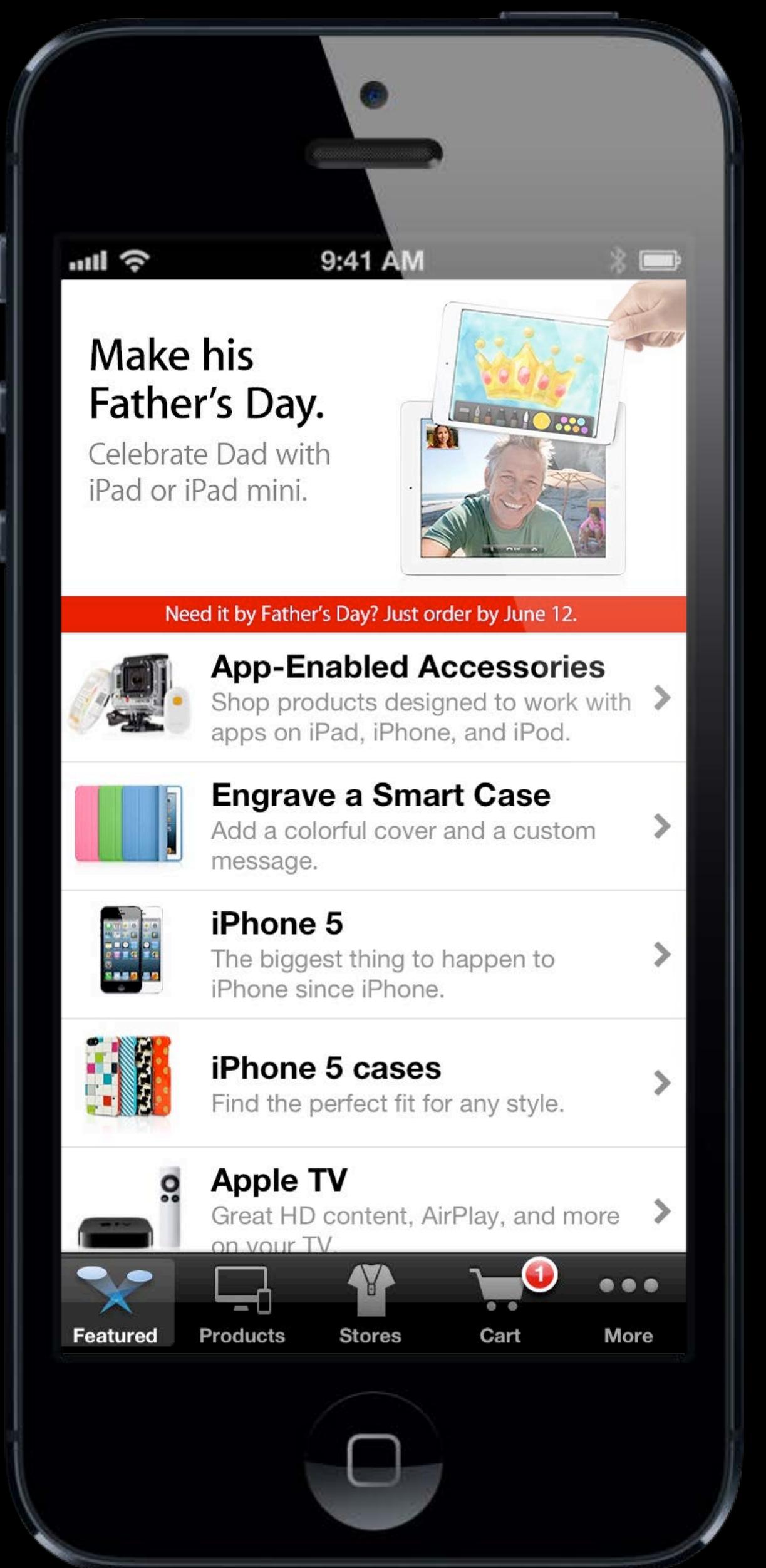
Agenda

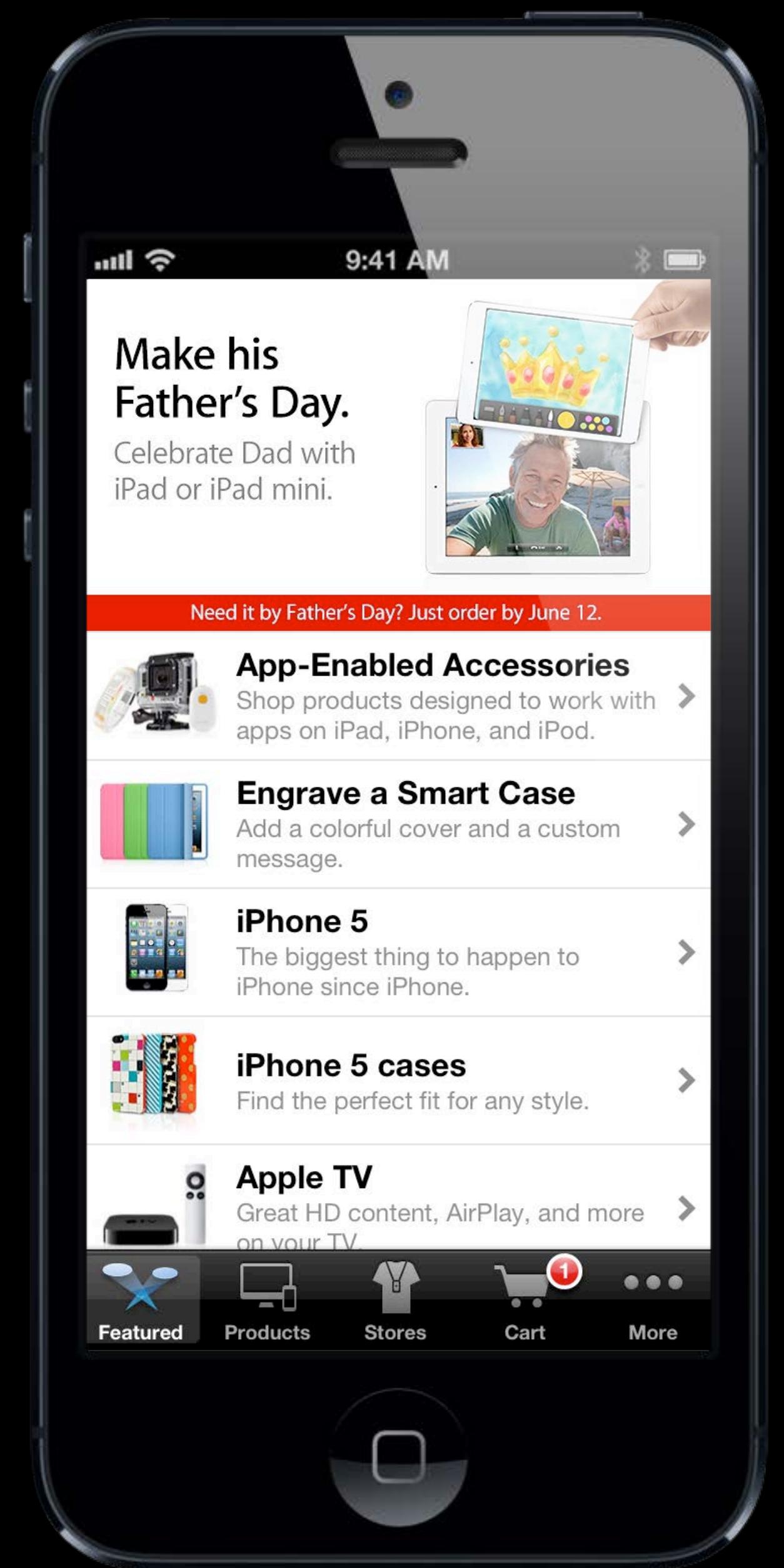






In-Store Mode



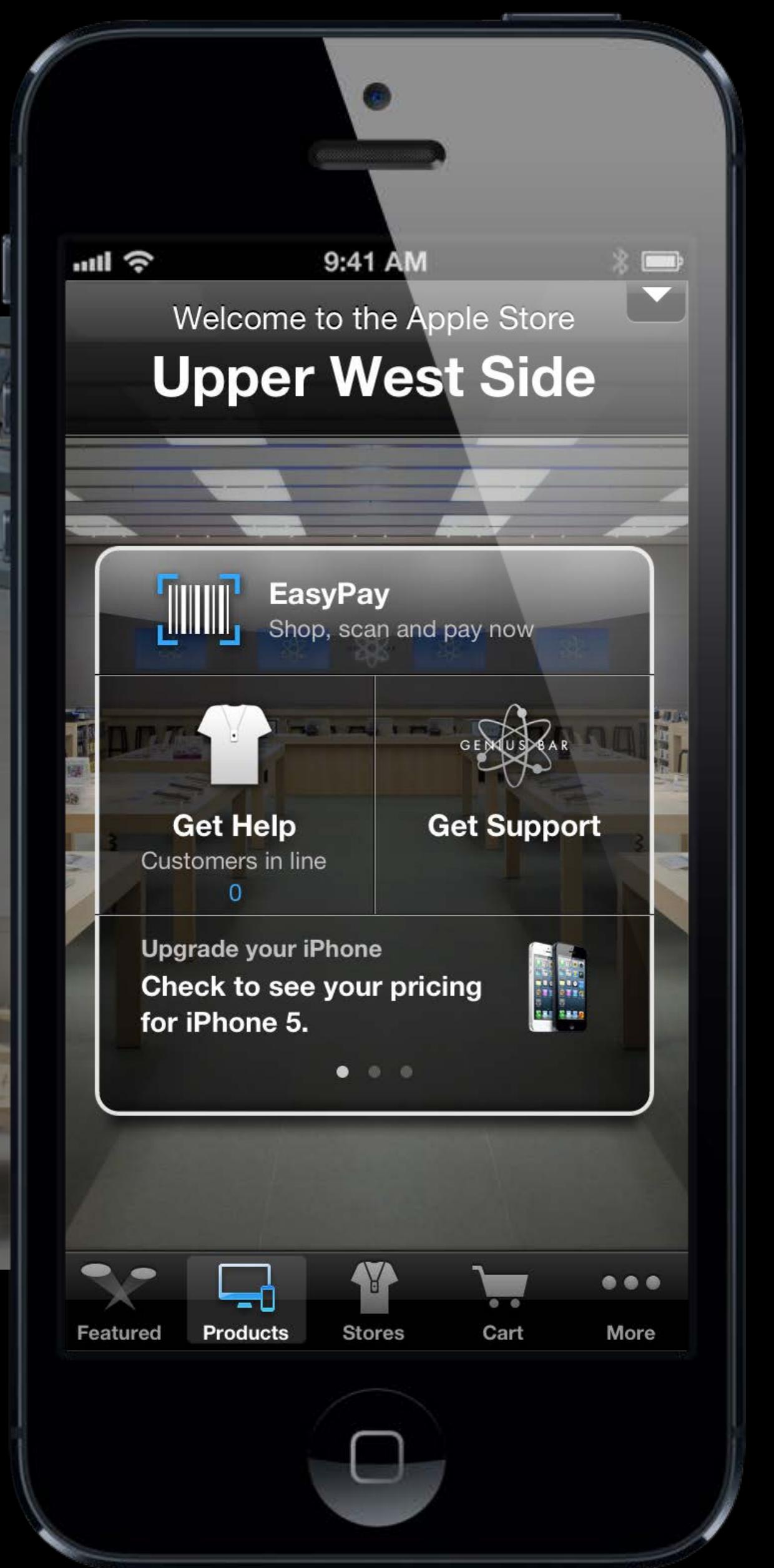
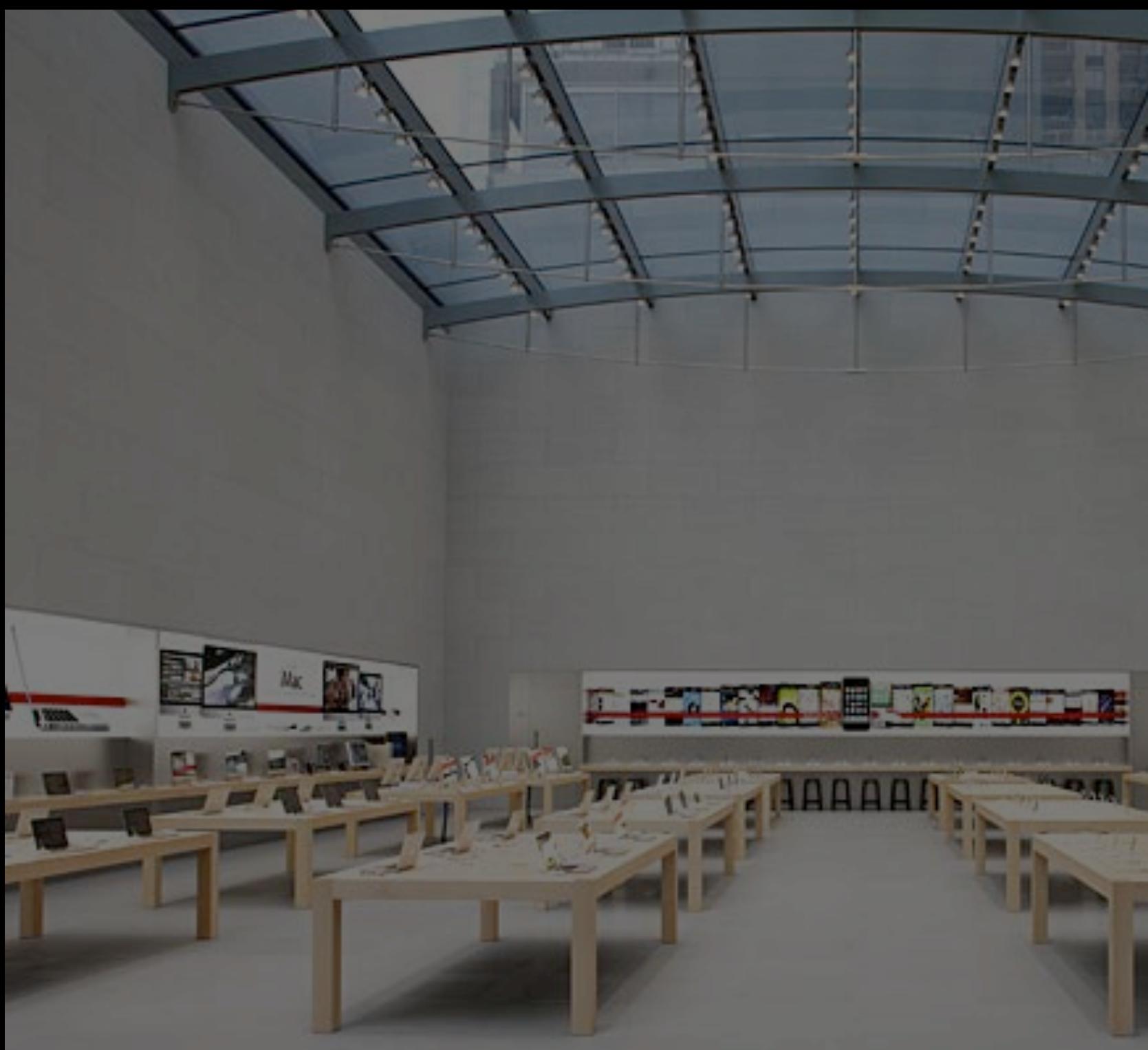




The iPhone screen shows the Apple Online Store homepage with a Father's Day promotion. The top banner reads "Make his Father's Day." and "Celebrate Dad with iPad or iPad mini." It features a small image of a man smiling while holding an iPad displaying a drawing of a crown. Below this, a red bar says "Need it by Father's Day? Just order by June 12." followed by a list of product categories:

- App-Enabled Accessories**
Shop products designed to work with apps on iPad, iPhone, and iPod.
- Engrave a Smart Case**
Add a colorful cover and a custom message.
- iPhone 5**
The biggest thing to happen to iPhone since iPhone.
- iPhone 5 cases**
Find the perfect fit for any style.
- Apple TV**
Great HD content, AirPlay, and more on your TV.

At the bottom of the screen, there is a navigation bar with icons for "Featured" (selected), "Products", "Stores", "Cart" (with a red notification bubble showing "1"), and "More".



In-Location Mode



In-Location Mode



In-Location Mode



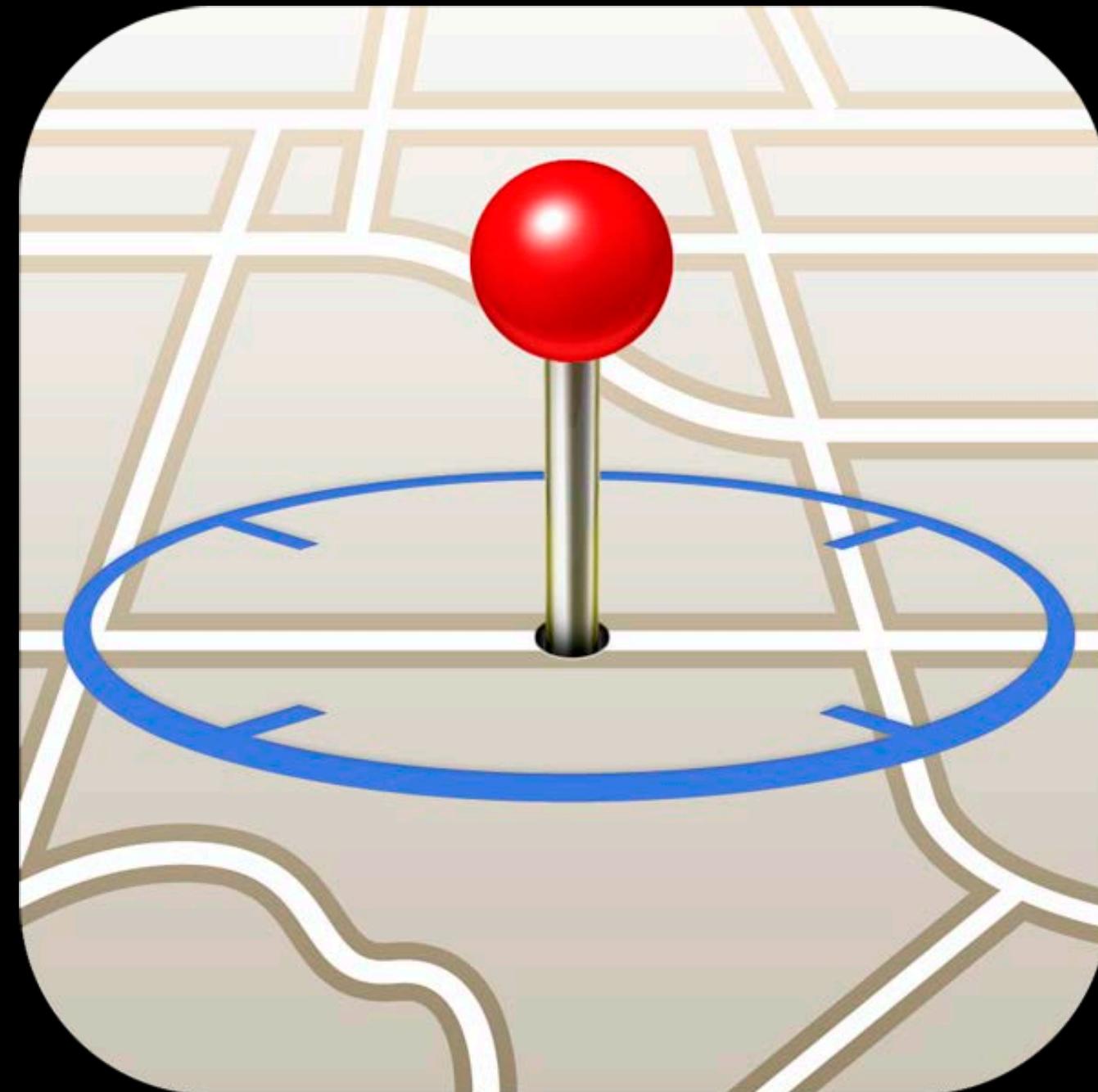
- Use Core Location APIs to obtain current user location
 - [CLLocationManager startUpdatingLocation]
 - locationManager:didUpdateLocations:



In-Location Mode



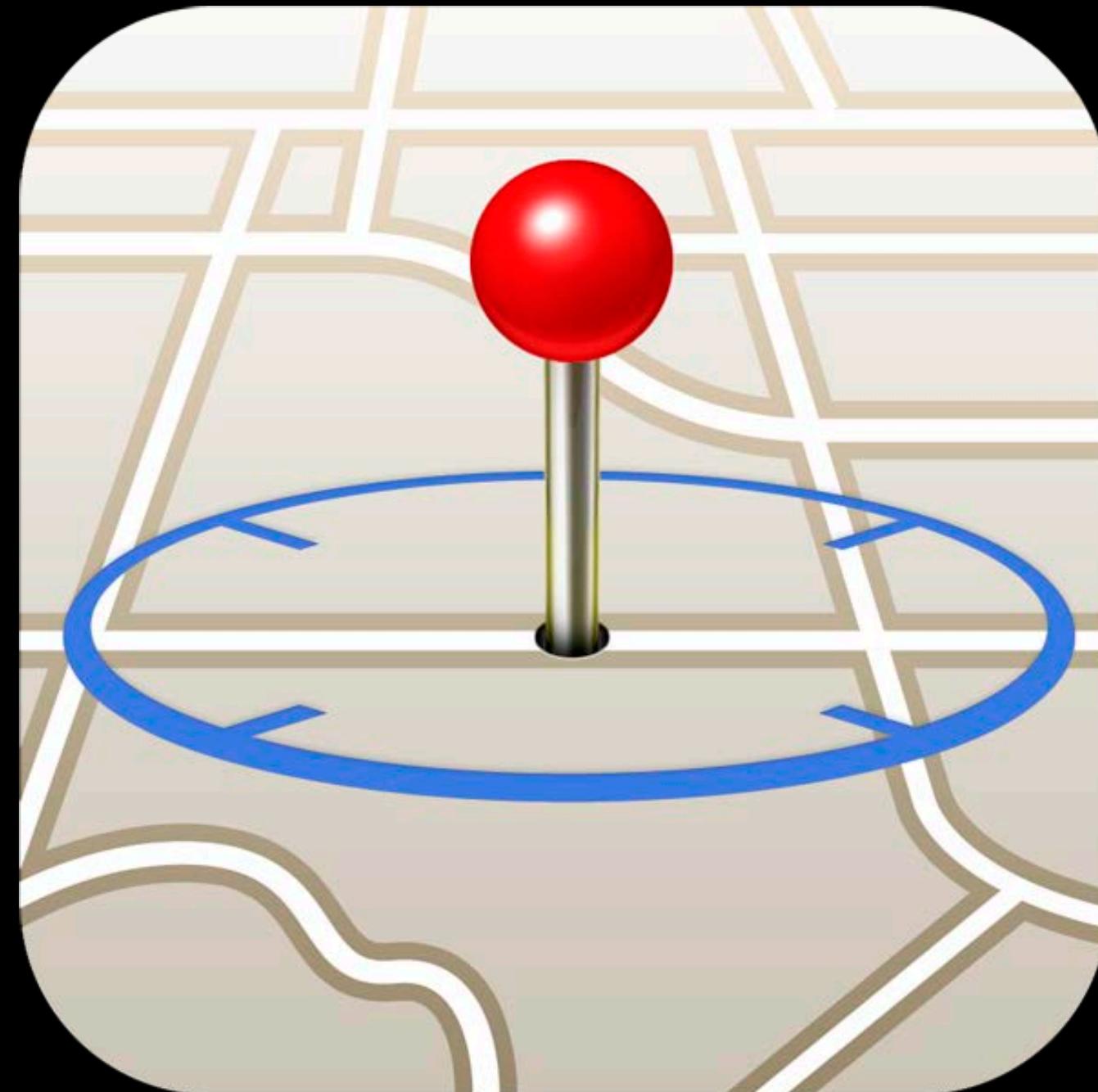
- Use Core Location APIs to obtain current user location
 - [CLLocationManager startUpdatingLocation]
 - locationManager:didUpdateLocations:
- Check distance between the user and the location of interest



In-Location Mode



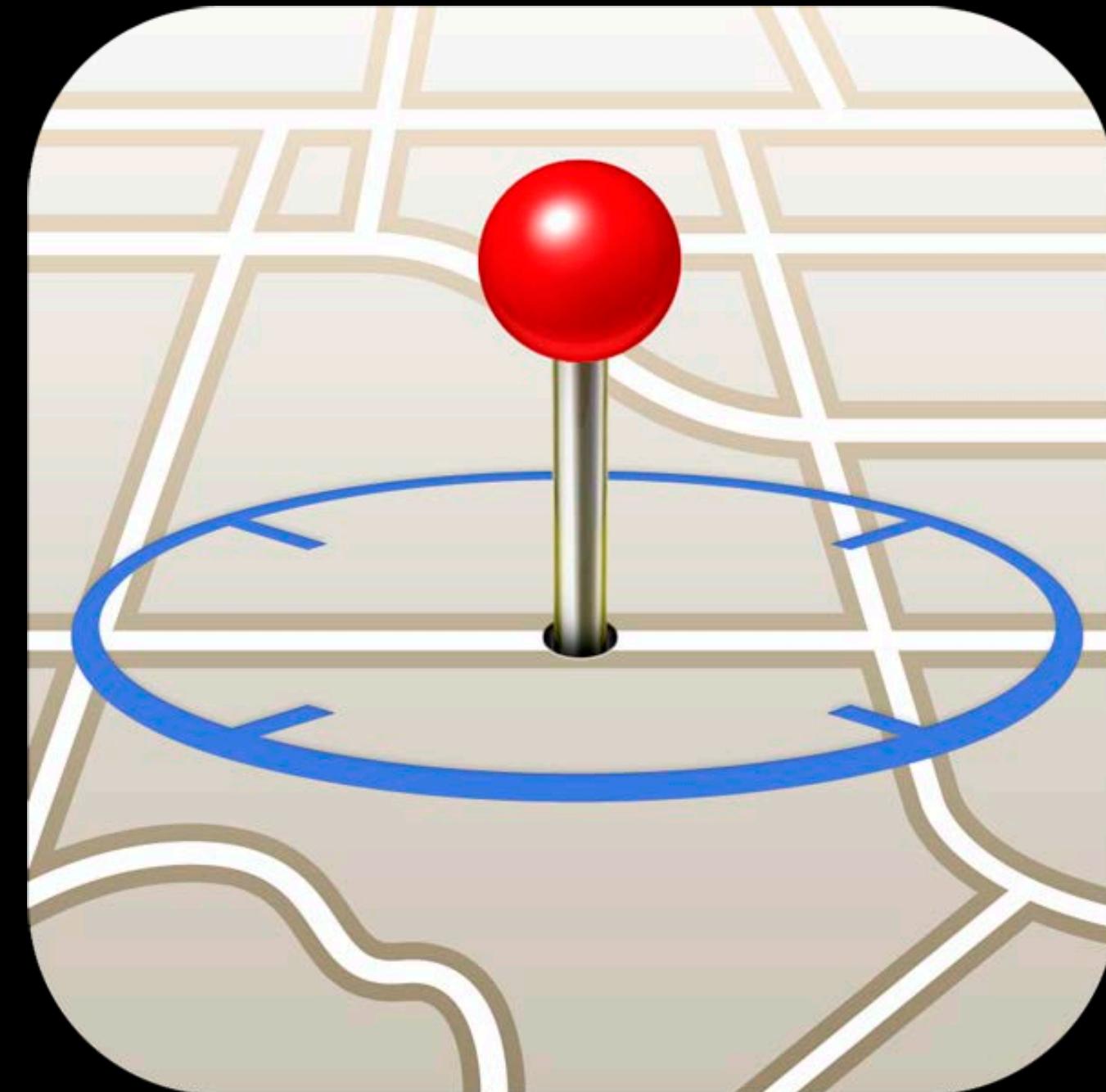
- Use Core Location APIs to obtain current user location
 - [CLLocationManager startUpdatingLocation]
 - locationManager:didUpdateLocations:
- Check distance between the user and the location of interest
- If within threshold, consider the user in the location and expose in-location UI



In-Location Mode



- Use Core Location APIs to obtain current user location
 - [CLLocationManager startUpdatingLocation]
 - locationManager:didUpdateLocations:
- Check distance between the user and the location of interest
- If within threshold, consider the user in the location and expose in-location UI
- Adjust your desired accuracy according to distance
 - [CLLocationManager setDesiredAccuracy:]



Tips, Tricks
And best practices

UI Guidelines



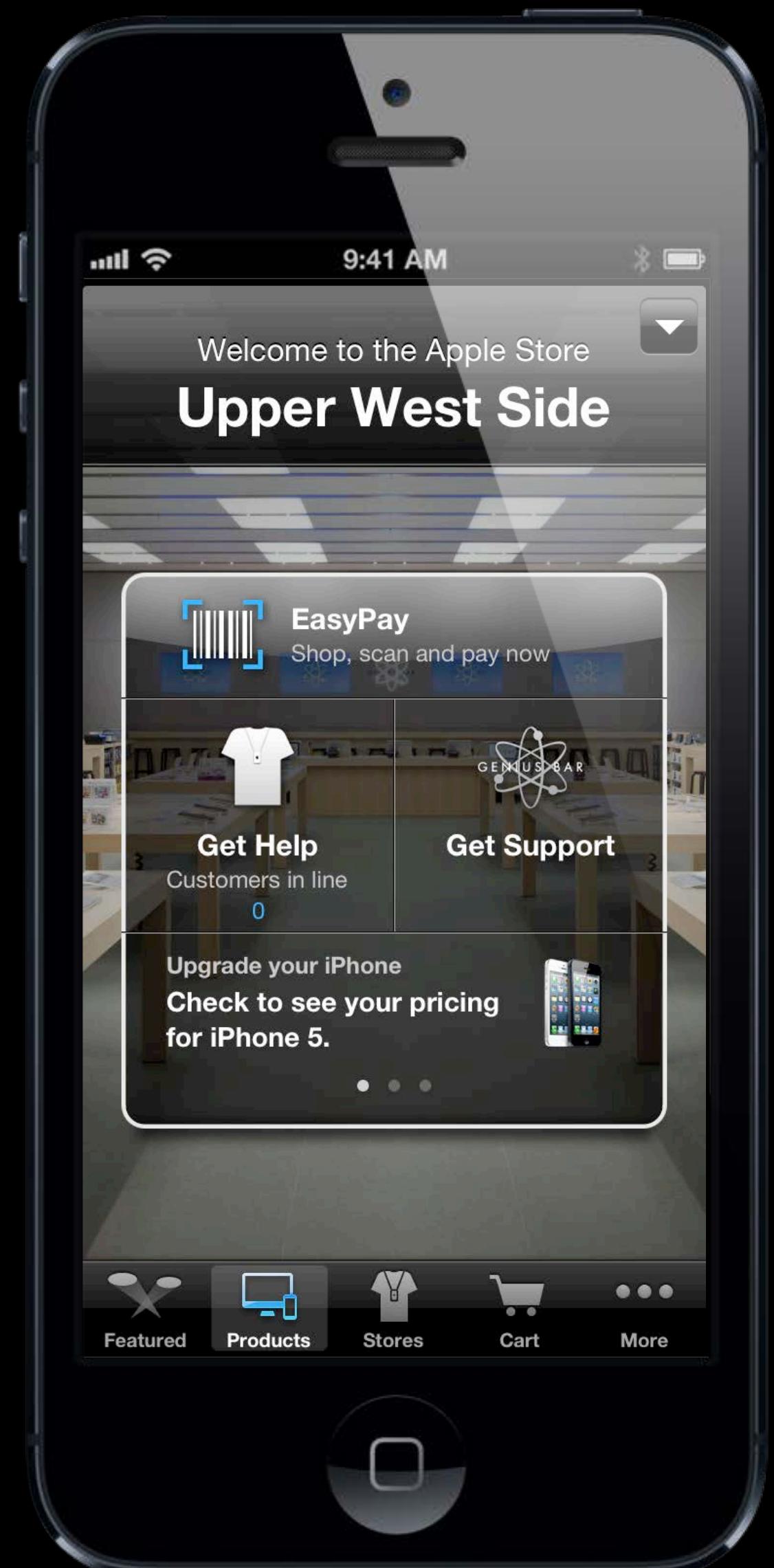
UI Guidelines



UI Guidelines



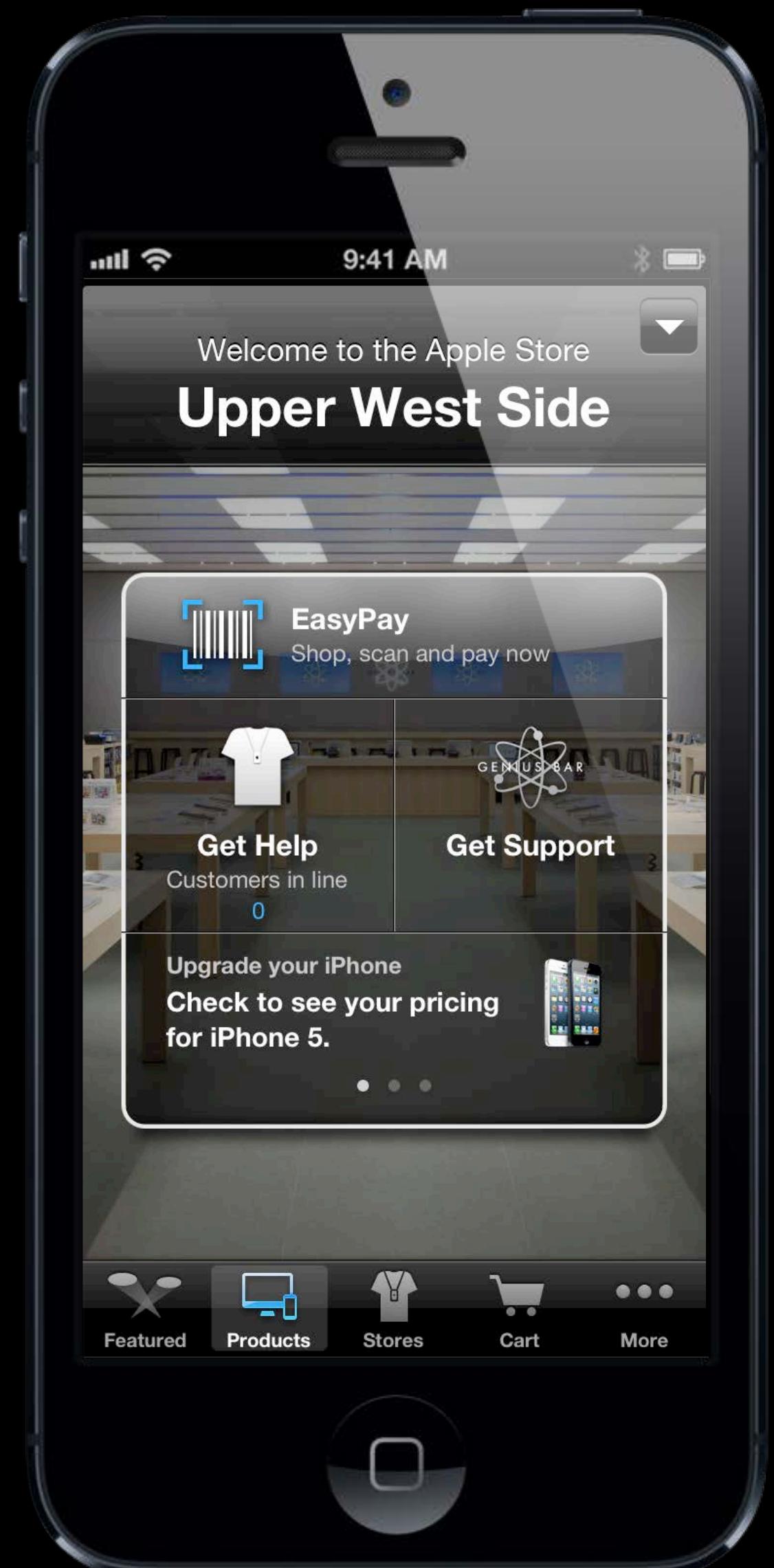
- Be distinctive and discernible



UI Guidelines



- Be distinctive and discernible
- Focus the user



UI Guidelines



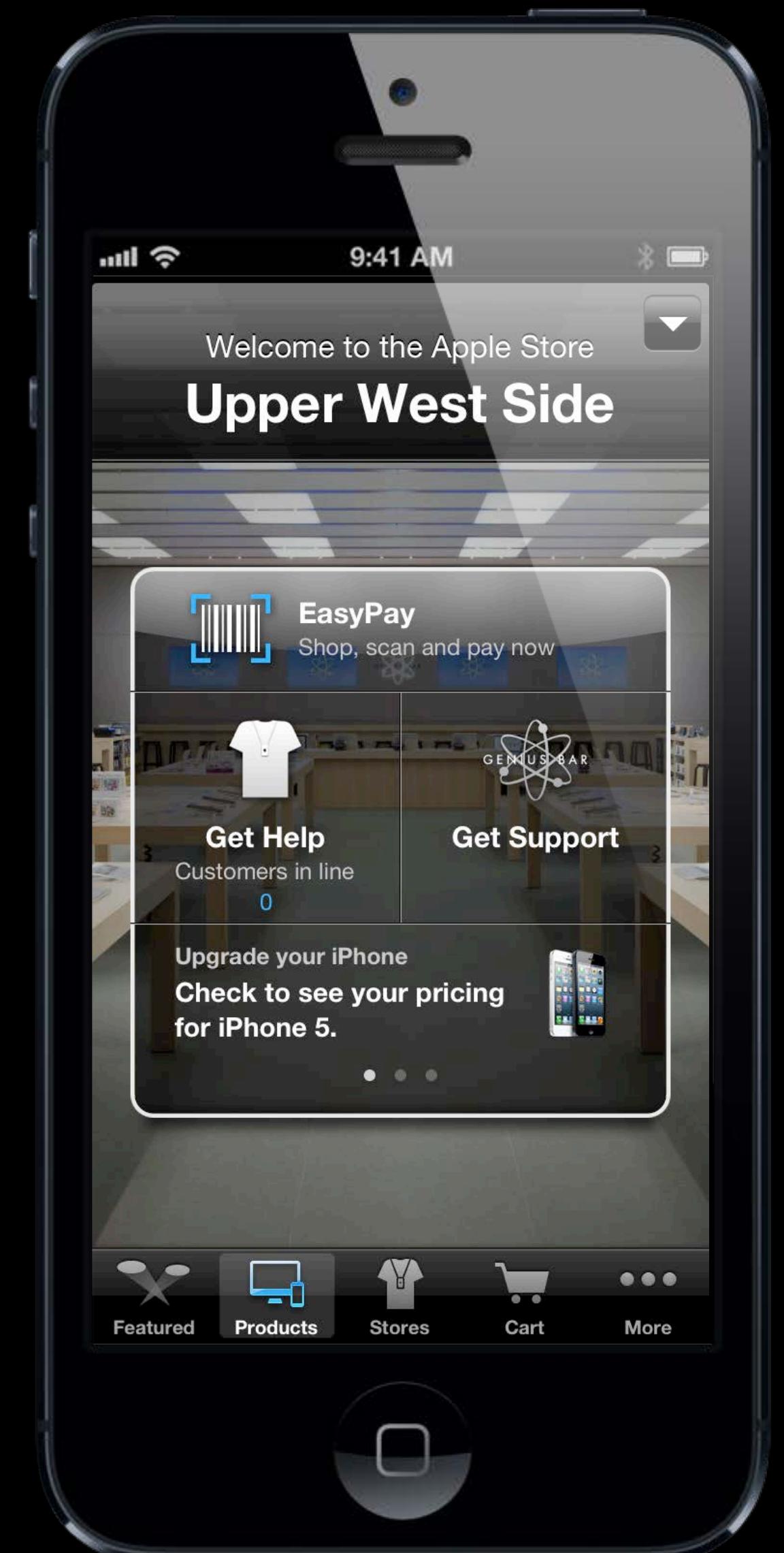
- Be distinctive and discernible
- Focus the user
- Be easily dismissed



UI Guidelines



- Be distinctive and discernible
- Focus the user
- Be easily dismissed



UI Guidelines



- Be distinctive and discernible
- Focus the user
- Be easily dismissed



In-Location UI Relevant Only In Location



In-Location UI Relevant Only In Location



In-Location UI Relevant Only In Location



- Detect if user has left location
 - Use CL to listen for exit events
 - Check user location on startup



In-Location UI Relevant Only In Location



- Detect if user has left location
 - Use CL to listen for exit events
 - Check user location on startup
- Handle location boundary conditions
 - Increase in-location thresholds



Richer Experiences with iOS 7

Use iBeacons to unlock new potential

iBeacons

Region monitoring





9:41

Friday, June 7

slide to unlock



9:41

Friday, June 7

slide to unlock



9:41

Friday, June 7

100%

slide to unlock





slide to unlock



slide to unlock

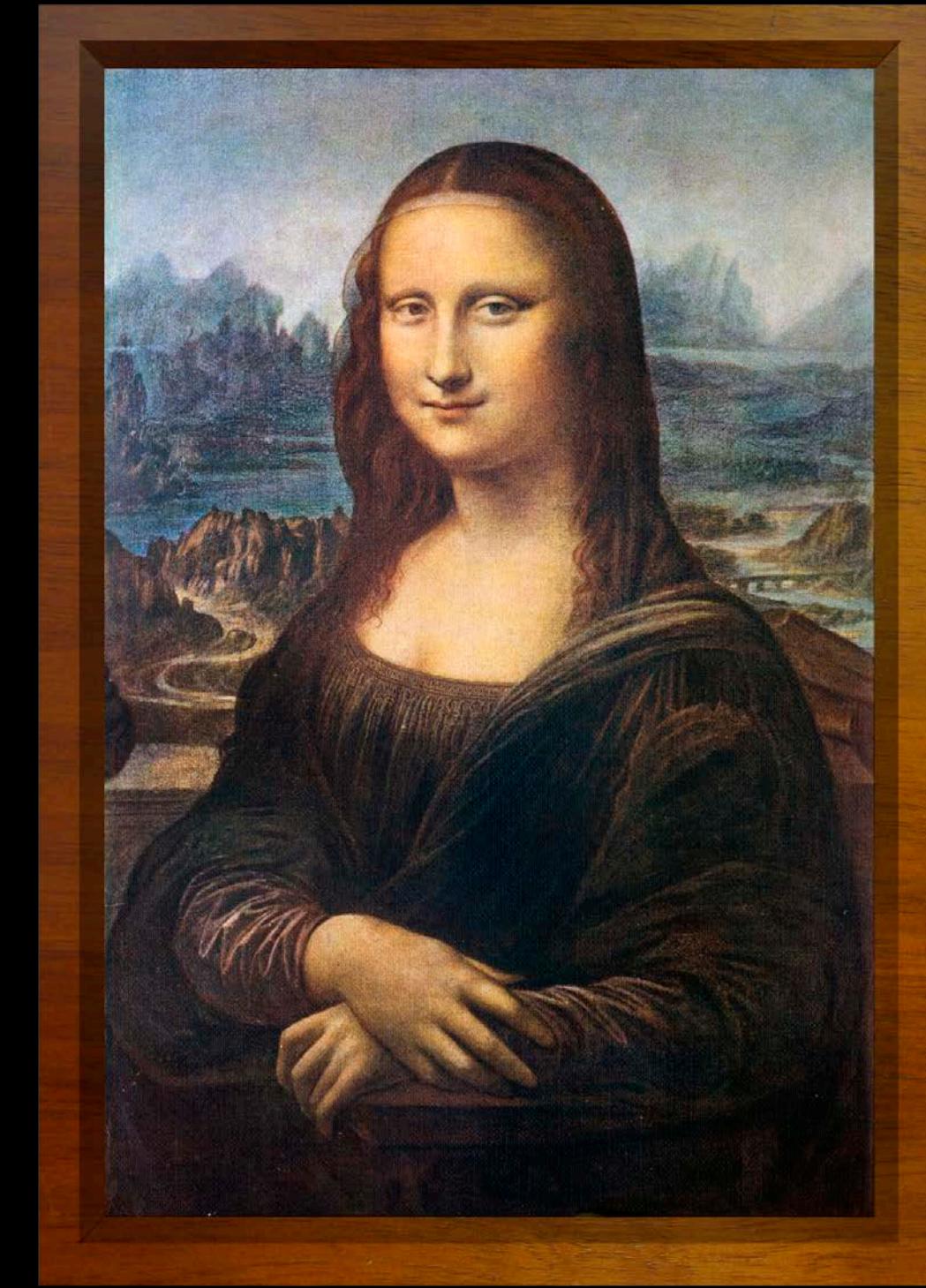


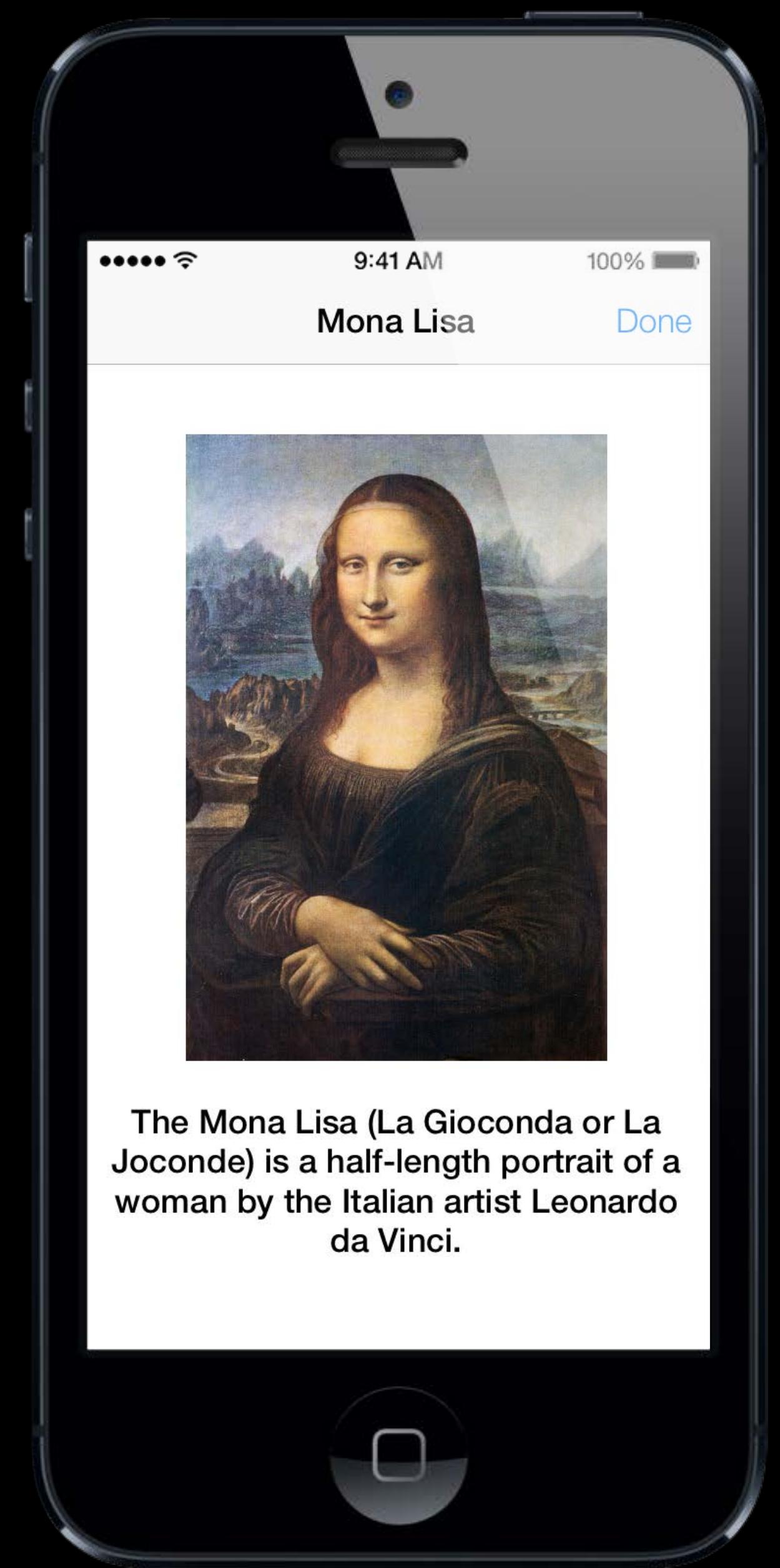
Welcome to our special exhibition at
the Louvre Museum. Your tour guide,
Mathieu, will meet you at the main
entrance.

iBeacons

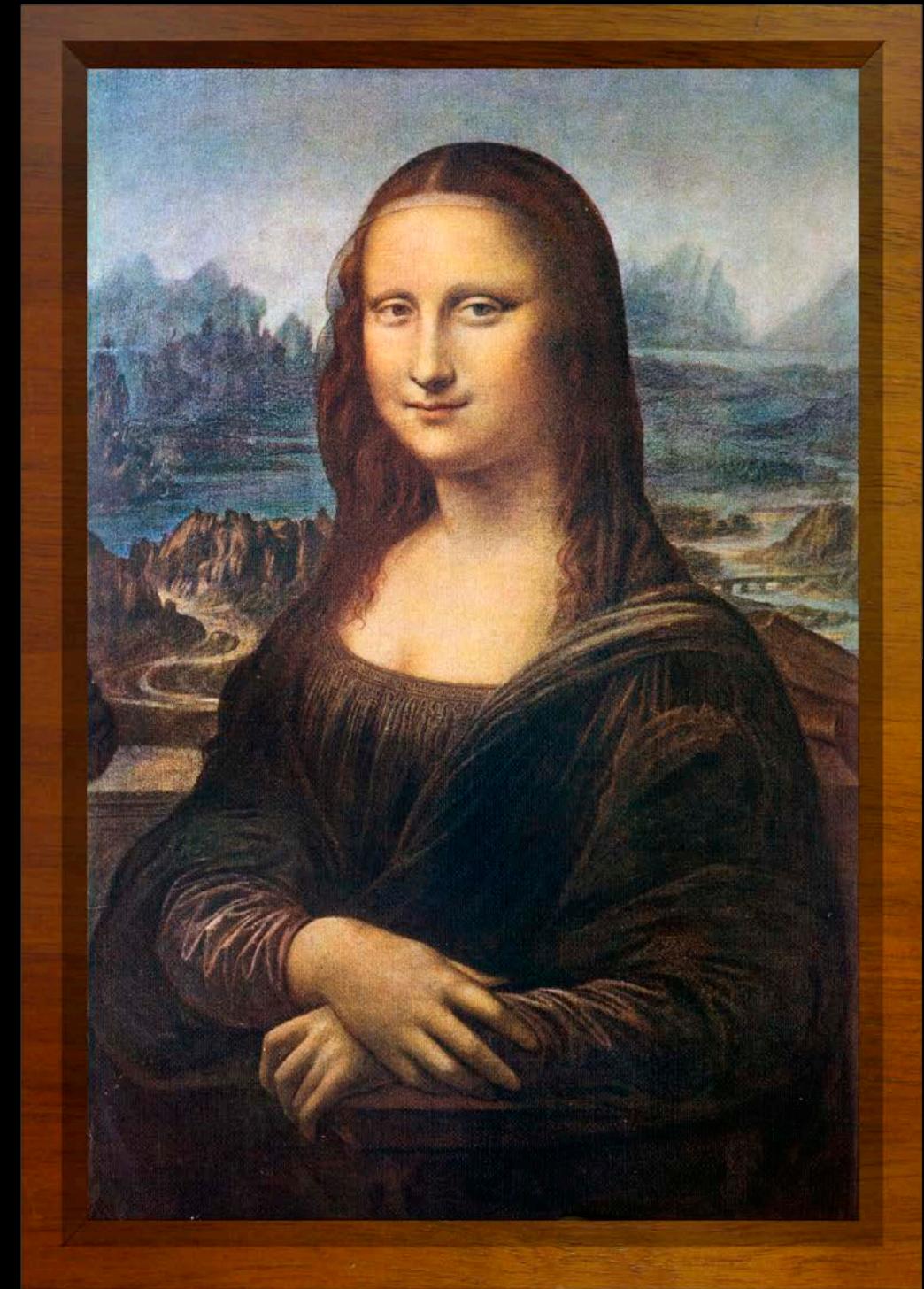
Ranging and micro-locations







The Mona Lisa (La Gioconda or La Joconde) is a half-length portrait of a woman by the Italian artist Leonardo da Vinci.









iBeacons



iBeacons



iBeacons



- Core Location monitors Bluetooth LE beacon signals



iBeacons



- Core Location monitors Bluetooth LE beacon signals
- Various hardware can be a beacon
 - Third-party Bluetooth LE emitters
 - iOS devices



iBeacons



- Core Location monitors Bluetooth LE beacon signals
- Various hardware can be a beacon
 - Third-party Bluetooth LE emitters
 - iOS devices
- Advantages
 - Accuracy and range awareness
 - One beacon ID can cover multiple locations



Demo

iBeacons region monitoring and ranging in practice

Yingfeng Su
Engineering Manager

Mathieu Roig
Engineer

Summary

- Key iOS technologies form the basis of great experiences in your apps



Summary

- Key iOS technologies form the basis of great experiences in your apps



- Use these technologies wisely and appropriately

Summary

- Key iOS technologies form the basis of great experiences in your apps



- Use these technologies wisely and appropriately
- Download the Apple Store App and follow along



More Information

Paul Marcos

App Services Evangelist

pmarcos@apple.com

Reference iOS App

Apple Store App

<http://itunes.apple.com/app/apple-store/id375380948>

Apple Developer Forums

<http://devforums.apple.com>

Related Sessions

| | | |
|--|-------------------------------------|---|
| What's New with Multitasking | Presidio Tuesday 2:00PM |  |
| Integrating Passbook into your Ecosystem | Pacific Heights Wednesday 3:15PM |  |
| What's New in Core Location | Presidio Thursday 11:30AM |  |

