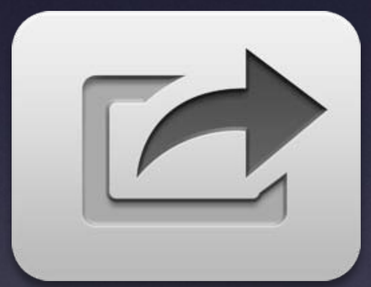
Platforms Kickoff

WWDC2012

Mail 2

Calendar 4

Messages 1



280

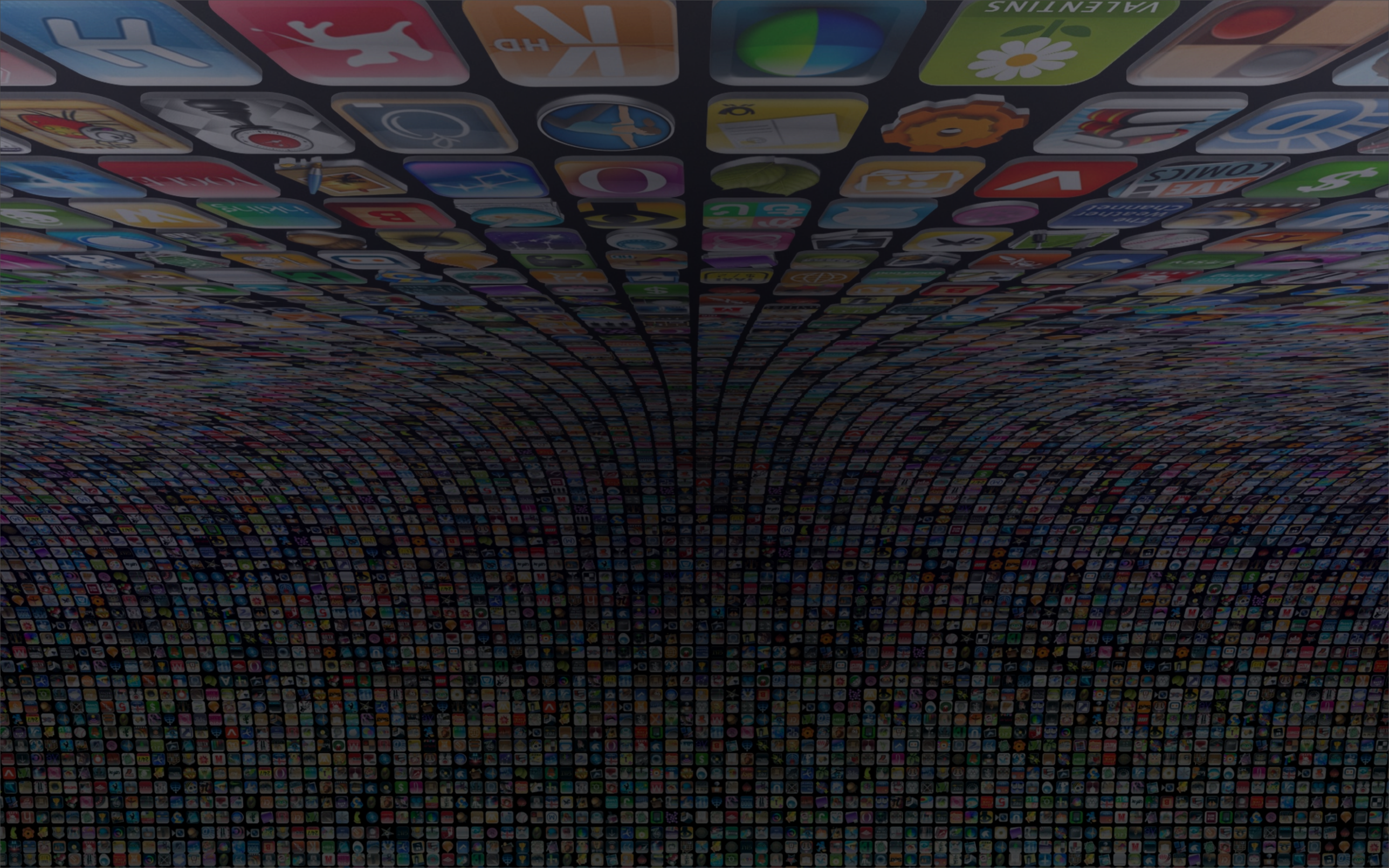
Monday
11
SDK

3000+

New APIs

6

The Weather Channel
COMICS
VALENTINS
HD



650,000

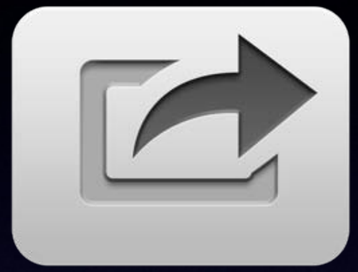
Apps on the store

30 Billion

Downloads

400 Million

Store Accounts



“Genius is 1% inspiration,
and 99% perspiration.”

Thomas Edison

Interaction

Visual

Implementation

Shape your app for people's use

Make it efficient, engaging, intuitive

Consult HI Guidelines

The right architecture for your feature set

Performance is key

Plan resources well

Make the right trade offs

Make your app beautiful and unique

Choose delightful visual elements

Provide a memorable experience

Interaction

Visual

Implementation

Introduced October 2011

OS X and iOS integration

Free

Simple and easy

Friday
7

A
B
C
D
E
F

125 Million

iCloud users

as of March 2012

iCloud Storage

Document storage

Core Data storage

Key-Value storage

iCloud Document Storage

For user-visible documents

Every document, every edit, everywhere

iWork

Pages File Edit Insert Format Arrange View Window Share Help
Mon 10:50 AM
Bird Safari
Spectacular wildlife.
Our coastal bird list includes the Gull-billed Tern, Snowy Plover, Esmeraldas Woodstar, Pacific Royal Flycatcher, Collared Antshrike, Guayaquil Woodpecker, Plumbeous Kite, Laughing Falcon, and Chilean Flamingo.
About 1,000 kilometers off the mainland lie the Galapagos Islands, where you can take in many geographical points of interest, from beautiful beaches to ancient rock formations, active volcanoes, lava caves, and other lava flow formations. In terms of birdlife, you're likely to see Greater Flamingos, Great Frigate Birds, Red- and Blue-footed Boobies, Finches, Short-eared Owls, Storm-petrels, Flightless Cormorants, and Galapagos Penguins.
With more bird species than many larger countries have, Ecuador is one of the top birding destinations in the world.
Of course, the wildlife on view in Ecuador is certainly not limited to birds. During your travels you may also spot butterflies, fox, puma, jaguar, ocelots, monkeys, sloths, anteaters, spectacled bear, mountain tapirs, iguanas, geckos, tortoises, lizards, and anaconda. And Ecuador has more frog and orchid species than
Page 1 of 8
2,315 Words
iPad
9:41 AM
Documents
Undo
Bird Safari

iCloud Core Data Storage

For Core Data-based apps

Sync records, not files

iCloud Key-Value Storage

For small amounts of data

Lightweight, simple, and fast

Document storage

Core Data storage

Key-Value storage

What's New

What’s New

What's New

Higher key value storage quotas	26 keys 64K total size 64K single key max	1024 keys 1MB total size 1MB single key max

What's New

Higher key value storage quotas	26 keys 64K total size 64K single key max	→	1024 keys 1MB total size 1MB single key max
Shorter key value storage sync interval	15 requests every 15 minutes	→	15 requests every 90 seconds

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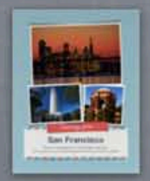
New Foundation API	State notification for document, data, accounts		

What's New

Higher key value storage quotas	26 keys 64K total size 64K single key max	→	1024 keys 1MB total size 1MB single key max
Shorter key value storage sync interval	15 requests every 15 minutes	→	15 requests every 90 seconds
New Foundation API	State notification for document, data, accounts		
AppKit	NSDocument auto-save		

iCloud | On My Mac

Pages

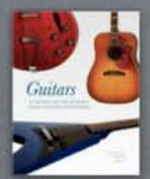

San Francisco
Jun 6, 2012

Glass
Jun 3, 2012

Sailing
Jun 3, 2012

Newsletters

Garden
Jun 3, 2012

Bikes
Jun 2, 2012

History of Guitars
May 31, 2012

Adventure Tours
May 24, 2012

Playbill
May 21, 2012

Year End Banquet
May 17, 2012

For Sale
May 12, 2012

Great Barrier Reef
May 2, 2012

Field Report
Apr 29, 2012

Paradis…n't Wait
Apr 23, 2012

Science Fair
Apr 19, 2012

Sectional Final
Apr 15, 2012

The Collin Family
Mar 31, 2012

Sailing Newsletter
Mar 21, 2012

New Document | Cancel | Open

developer.icloud.com

30+

Localizations

44

iOS Keyboard Languages

123 Countries

41 Languages

Chinese keyboard improvements

Vertical text

Baidu (Chinese search)

Auto Layout

Mail service additions

Unicode 6.1

Extended Emoji

Linguistic APIs

Additional keyboards

New Chinese fonts

Chinese social media

Definition dictionaries

Japanese fonts

Input improvements

User dictionary syncing

Korean fonts

Chinese Keyboard Improvements

准确度更高

智能纠错

注音全鍵盤

拆分选择栏

拆字

简拼

Auto-correction improvements

Better prediction accuracy

OTA word list updates

Enhanced split keyboard for iOS

iPad
9:41 AM
www.apple.com.cn/ipad/features/
搜索
Apple - iPad 2 - 薄，轻，却满载精彩。
裹。它仅有 8.8 毫米厚，最轻仅 601
克重，手感更舒适[2]。有了它，浏览网
络、查看电子邮件、欣赏视频和阅读
电子书都变得如此自然，你会疑惑为
何之前会用其他方式来做这些事情。
2/14 个匹配
通话 童话 通化
视频tong hua
完成
确认
其他
.?123

Chinese Fonts

行楷传承中文字体之美

楷体传承中文字体之美

魏碑传承中文字体之美

隶变传承中文字体之美

暴隶传承中文字体之美

宋体传承中文字体之美

圆体传承中文字体之美

兰亭黑传承中文字体之美

雅痞传承中文字体之美

Emoji

Chinese keyboard improvements

Vertical text

Baidu (Chinese search)

Auto Layout

Mail service additions

Unicode 6.1

Extended Emoji

Linguistic APIs

Additional keyboards

New Chinese fonts

Chinese social media

Definition dictionaries

Japanese fonts

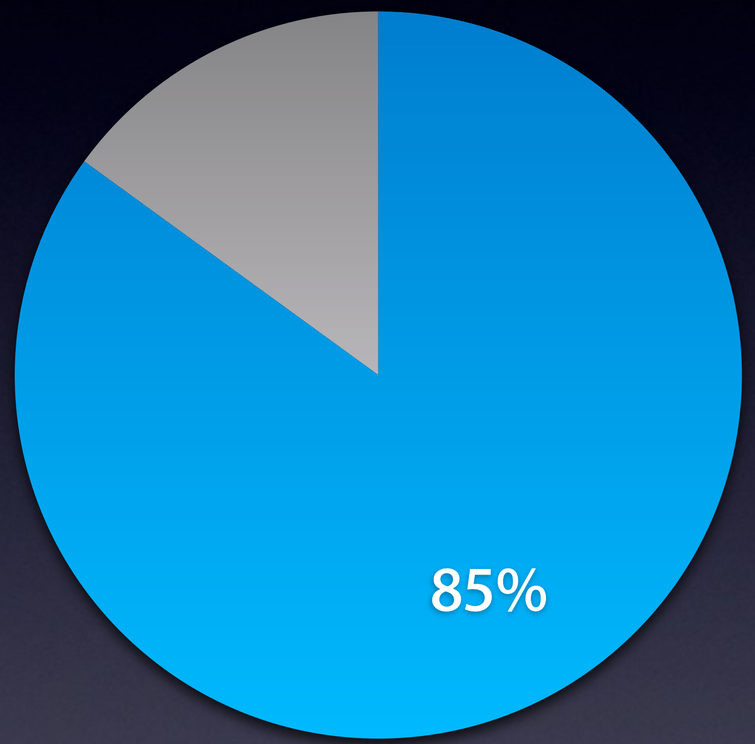
Input improvements

User dictionary syncing

Korean fonts

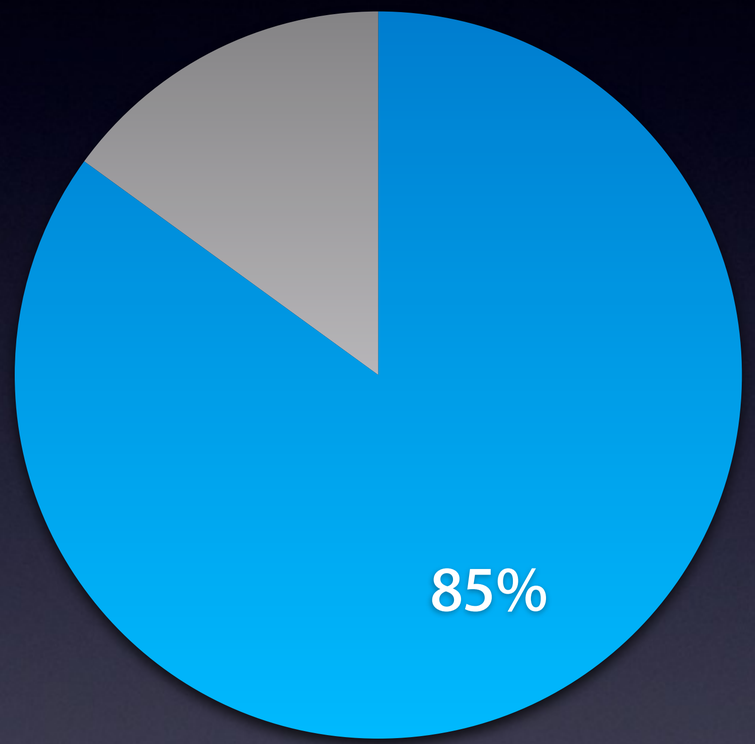
Who Gets Localized Apps?

Who Gets Localized Apps?



English

Who Gets Localized Apps?



English

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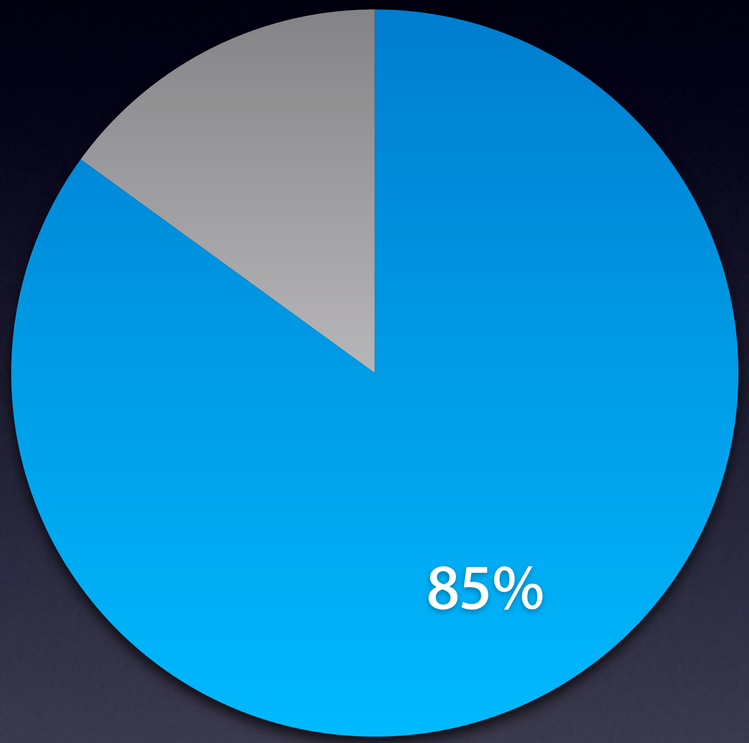
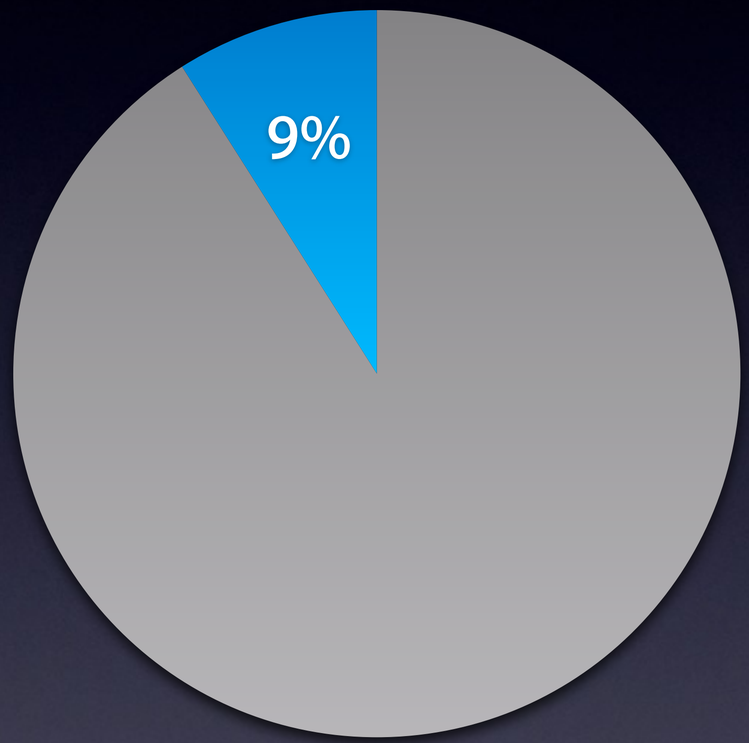
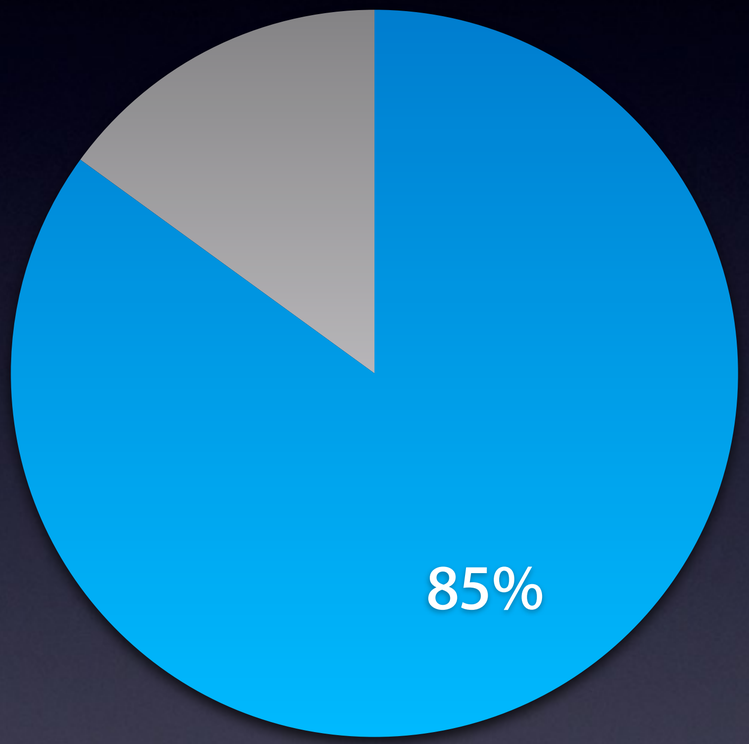


English

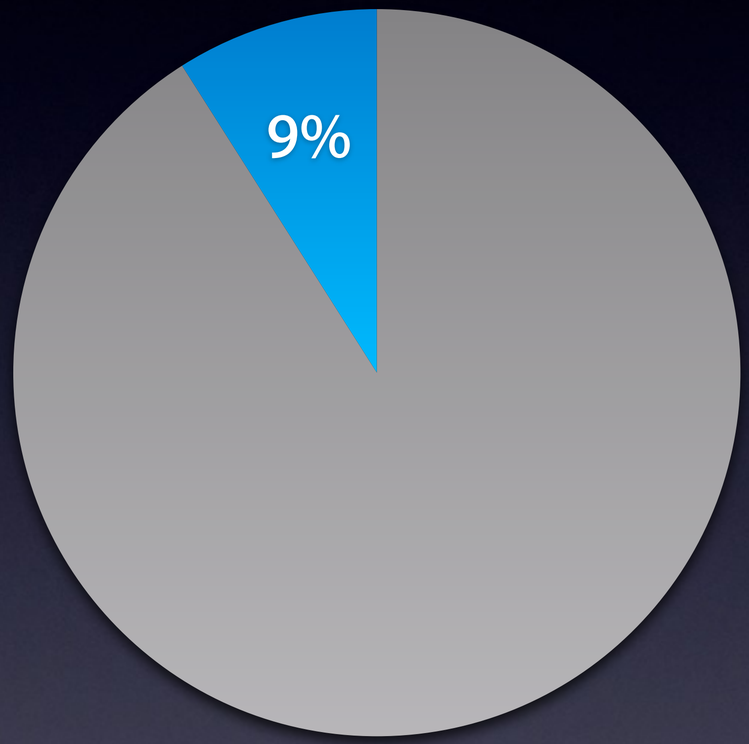


French

Who Gets Localized Apps?



English



French

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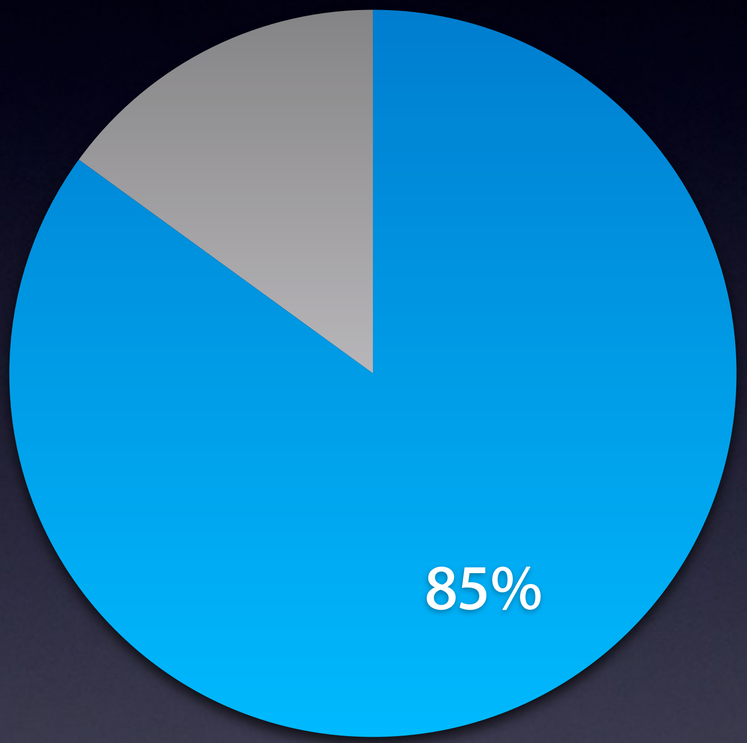
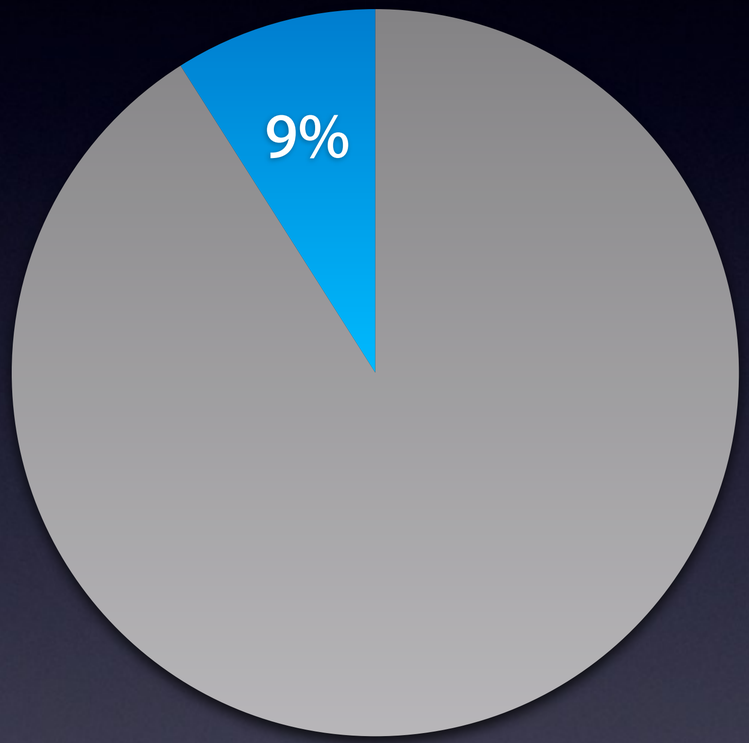
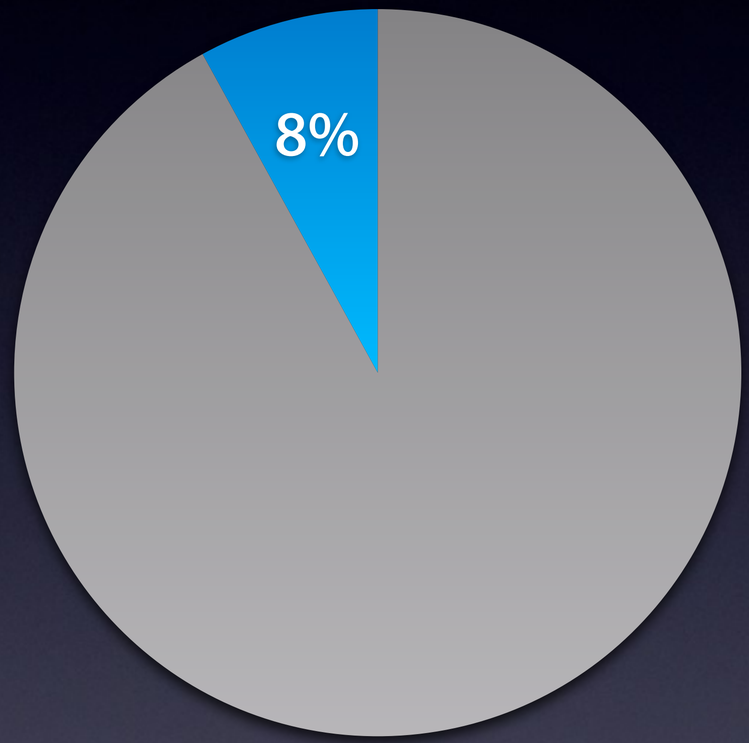


English



French



Chinese

Assistive Touch

Mouse Keys

Contrast Enhancements

Speak Selection

Sticky Keys

Hearing-Aid Mode

Mono Audio

Slow Keys

Zoom

Invert Colors

Guided Access

Large Text

Zoom Window

Subtitles

VoiceOver

LED Flash for Alerts

Speak Auto-text

Closed Captioning

Cursor Scaling

Mouse Keys

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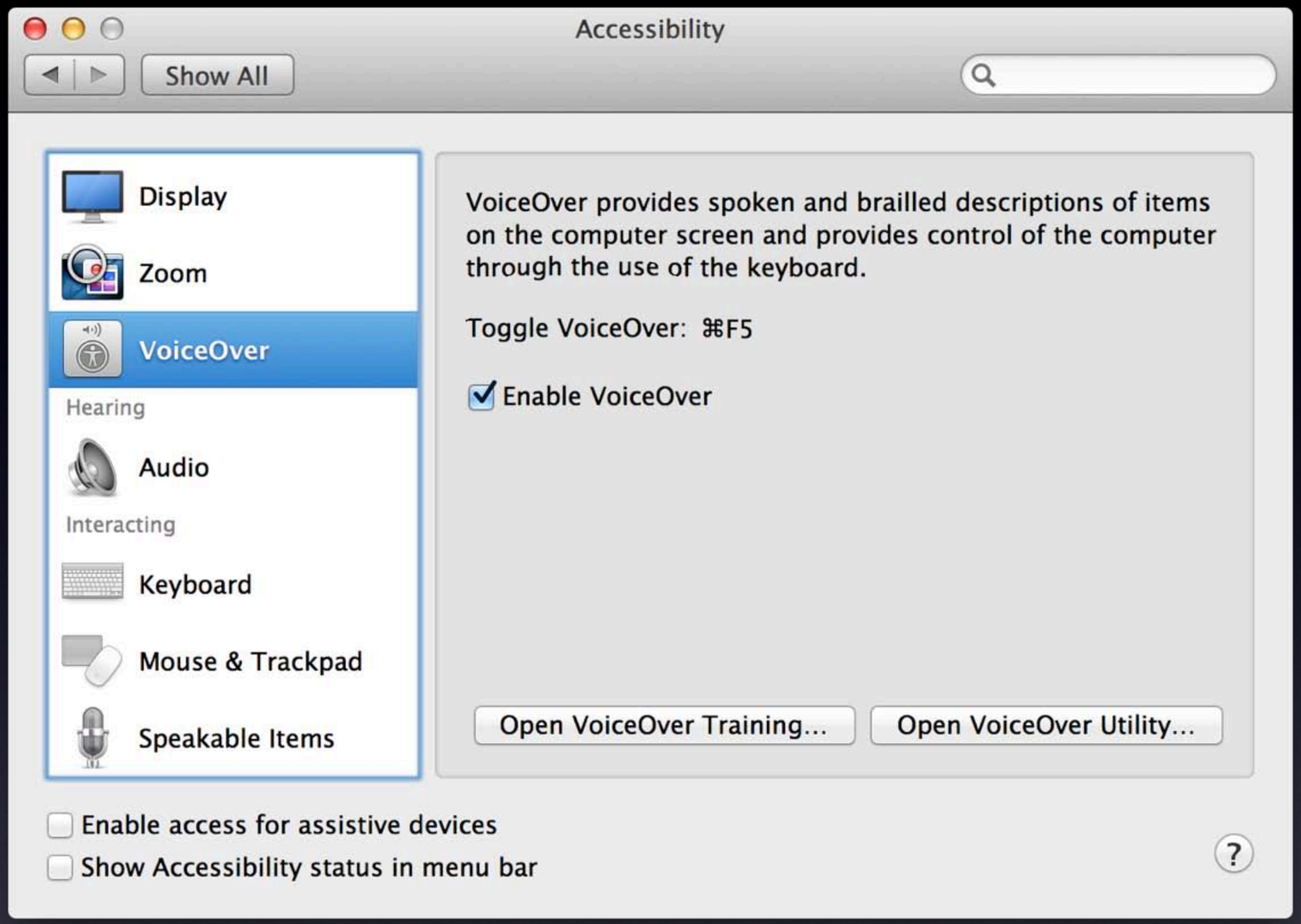
Closed Captioning

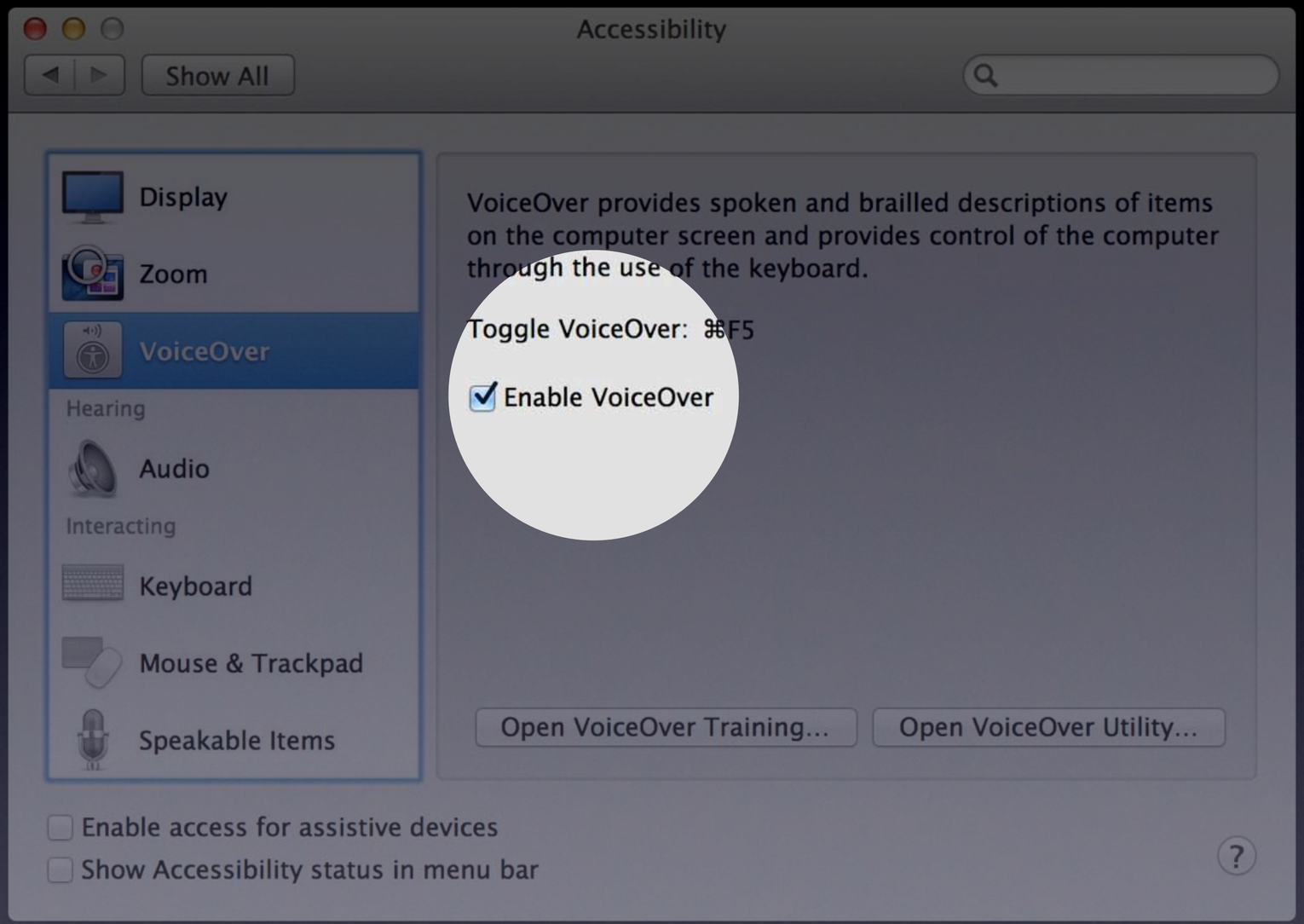
Cursor Scaling

“...the iPhone has turned out to be one of the most revolutionary developments since the invention of Braille.”

The Atlantic, May 2, 2012

Adopt VoiceOver


Accessibility
Show All
Display
Zoom
VoiceOver
Hearing
Audio
Interacting
Keyboard
Mouse & Trackpad
Speakable Items
VoiceOver provides spoken and brailled descriptions of items on the computer screen and provides control of the computer through the use of the keyboard.
Toggle VoiceOver: ⌘F5
Enable VoiceOver
Open VoiceOver Training...
Open VoiceOver Utility...
Enable access for assistive devices
Show Accessibility status in menu bar
?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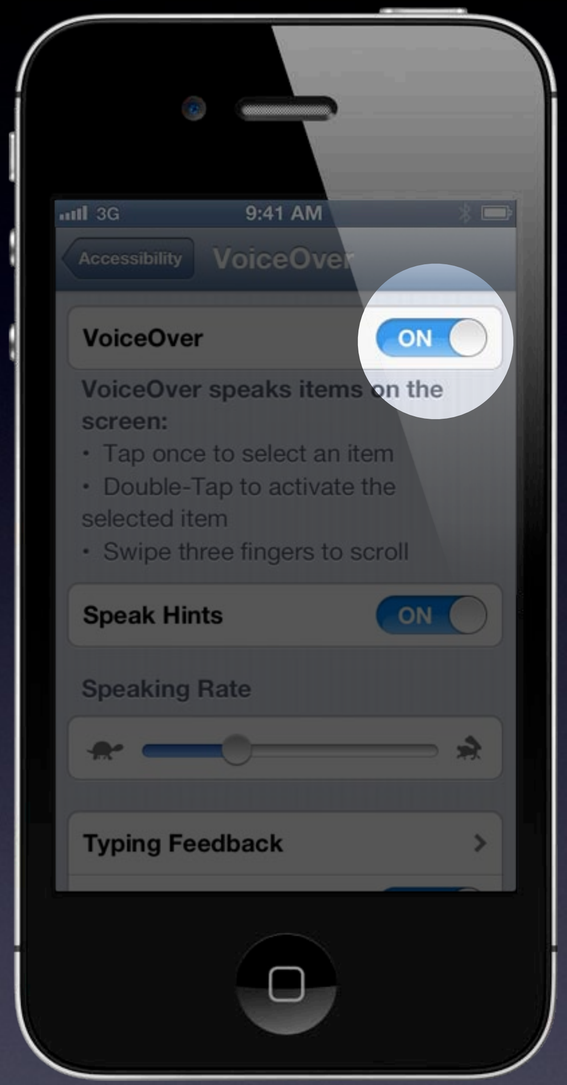
3G
9:41 AM
Accessibility
VoiceOver
VoiceOver
ON
VoiceOver speaks items on the screen:
• Tap once to select an item
• Double-Tap to activate the selected item
• Swipe three fingers to scroll
Speak Hints
ON
Speaking Rate
Typing Feedback


3G
9:41 AM
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• Tap once to select an item
• Double-Tap to activate the selected item
• Swipe three fingers to scroll
Speak Hints
ON
Speaking Rate
Typing Feedback

UIAccessibility

NSAccessibility

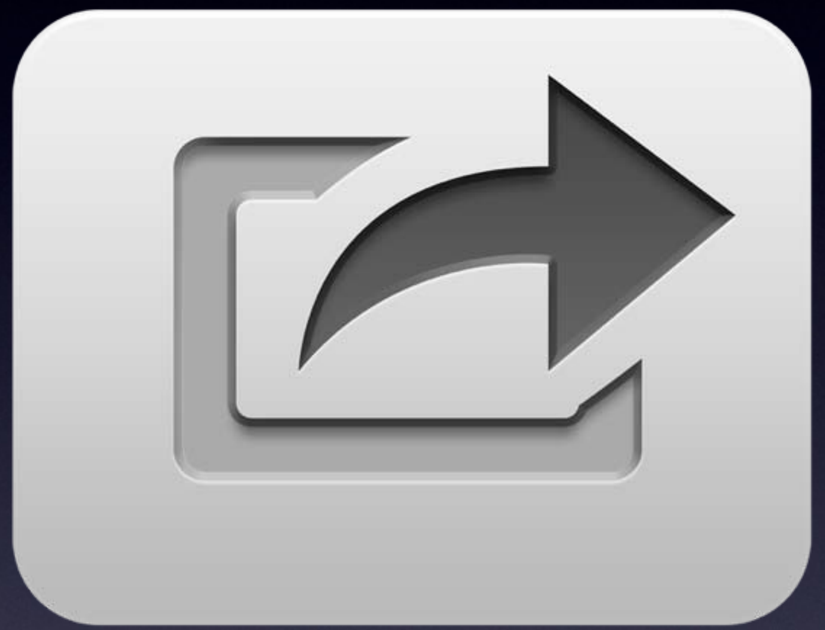
Why?

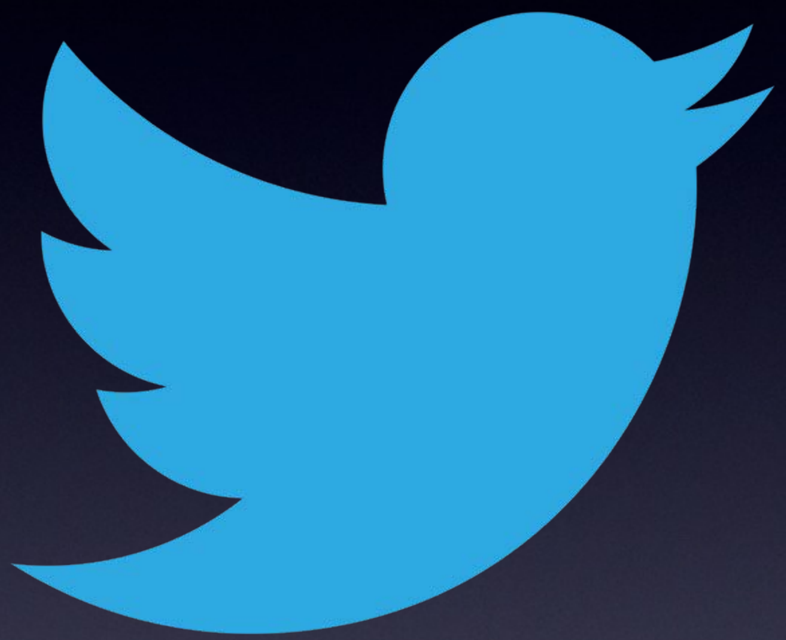
Increase your user base

Differentiate your app

Generate buzz

Target schools and governments





Single Sign On

Posting UI

Integration with Contacts

Integration with Calendar (iOS)

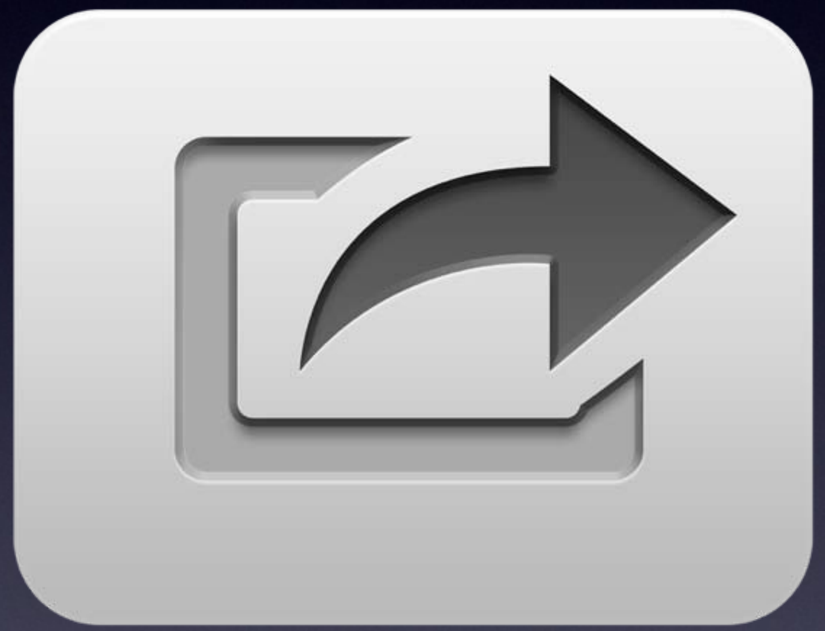
iOS

YOUKU 优酷

flickr

vimeo

Sharing API



Standard system service

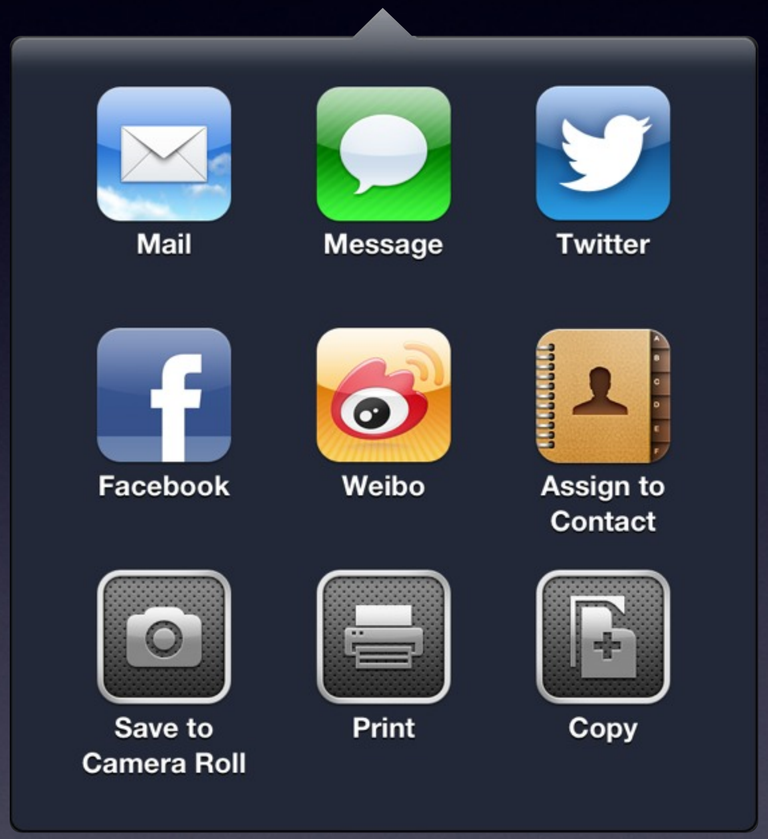
Unified API for all services

Consistent UI

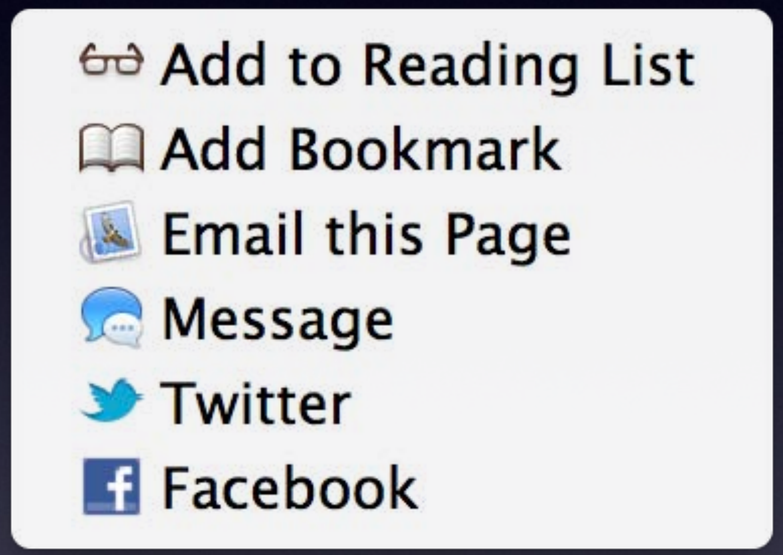
Filters options automatically

Extensible in your app

UIActivityViewController

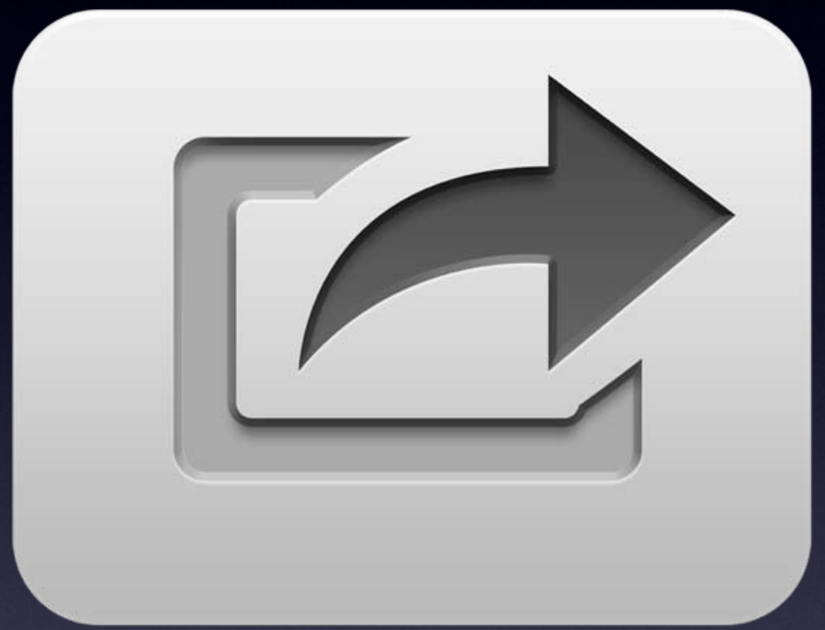


NSSharingServicePicker



Finder File Edit View Go Window Help
Mon 10:50 AM
Protesting the New Orleans Way: A Tailgate Rally to Save the Times-Picayune – Business – The Atlantic Wire
www.theatlanticwire.com/business/2012/06/protesting-new-orleans-way-tailgate-rally-save-times-picayune/53143/
Reader
Apple iCloud Facebook Twitter Wikipedia Yahoo! News Popular
Protesting the New Orleans Way: A
Tailgate Rally to S
Like 13k
SEARCH
Facebook
Friends
This is an intriguing story!
Add Location
Cancel
Post
IMPORTED FROM DETROIT
THE NEW 2012
CHRYSLER 300
Dan Lawton (@dlawton), via Twitter
Like 23
Tweet 27
+1 0
Share
Print article
Email article
Comments (4)

Demo



130 Million

Players

5 Billion

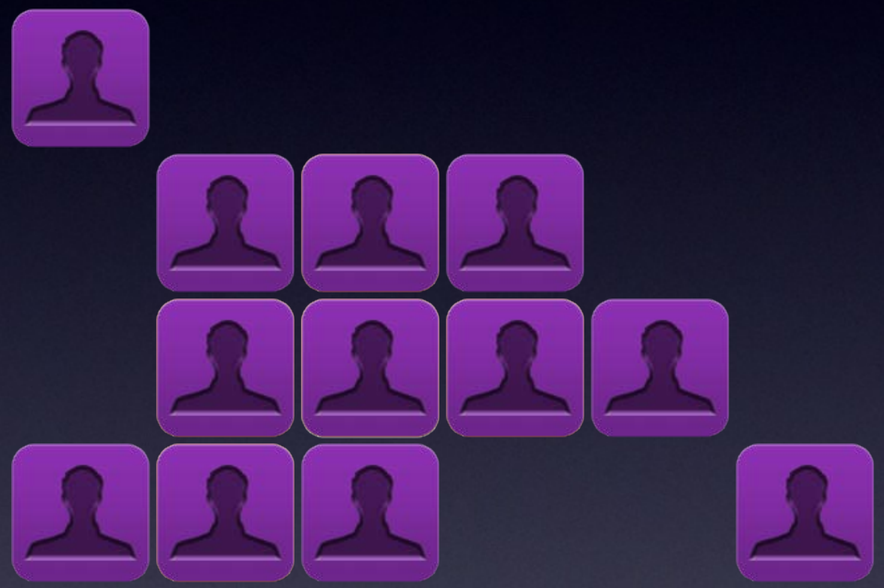
Scores per week

Social Game Network

Social Game Network

Friends' games

Social Game Network

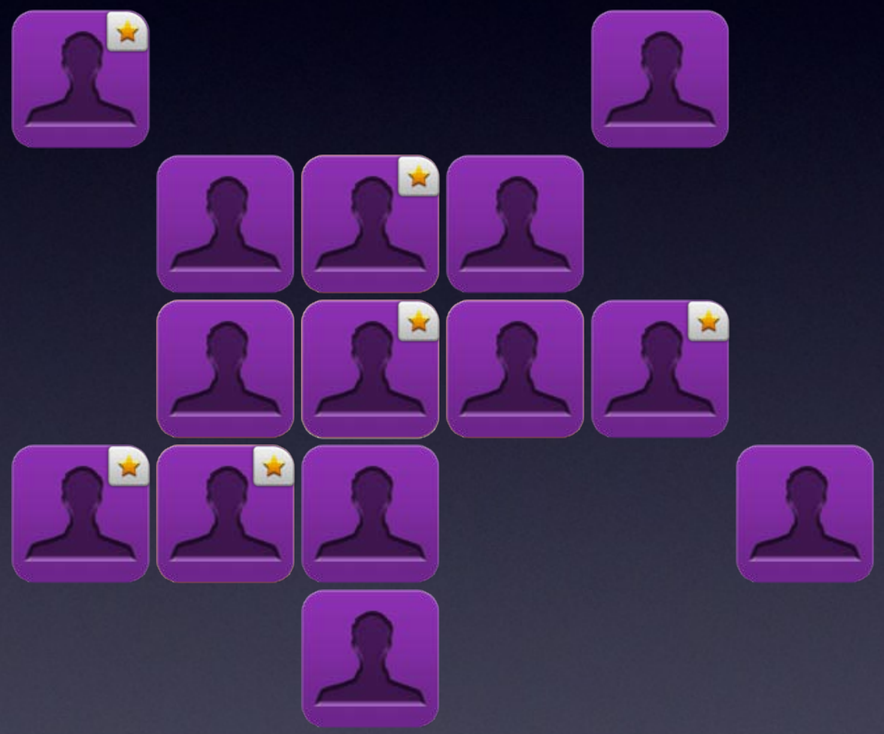


Friends' games

Turn based multiplayer

Real time multiplayer

Social Game Network



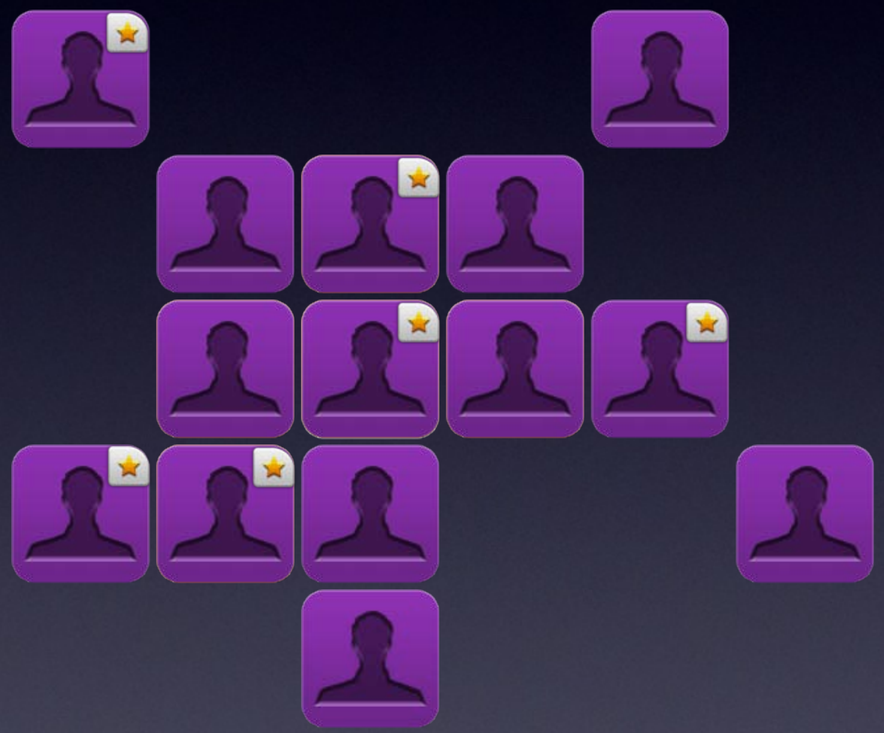
Friends' games

Turn based multiplayer

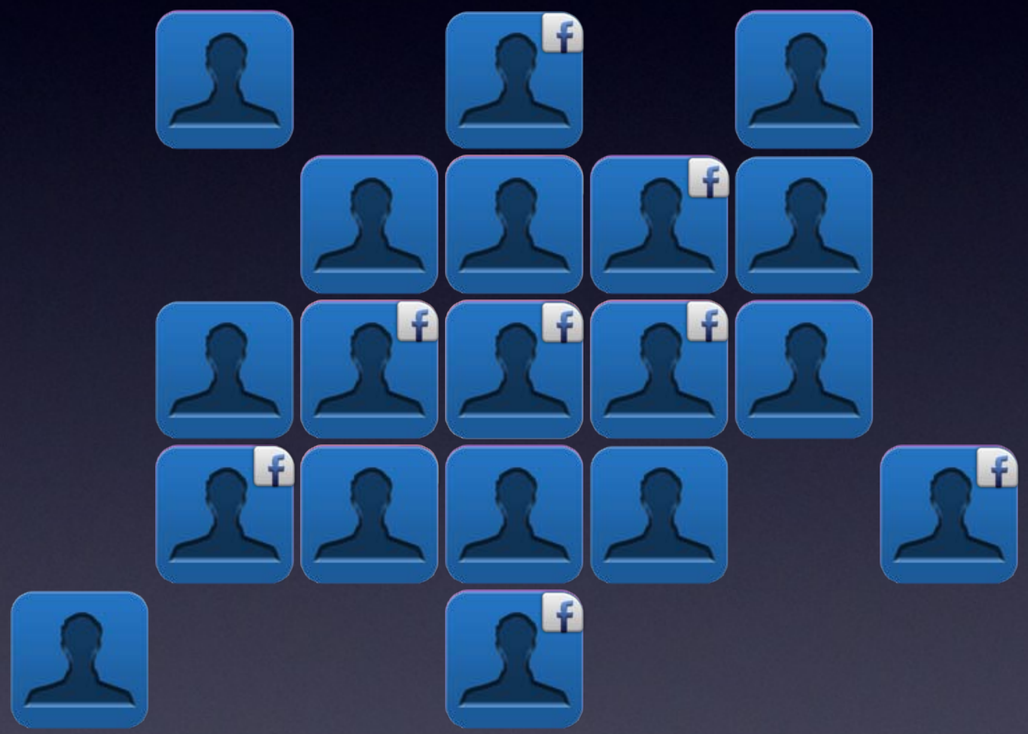
Real time multiplayer

Game ratings

Social Game Network



Social Game Network



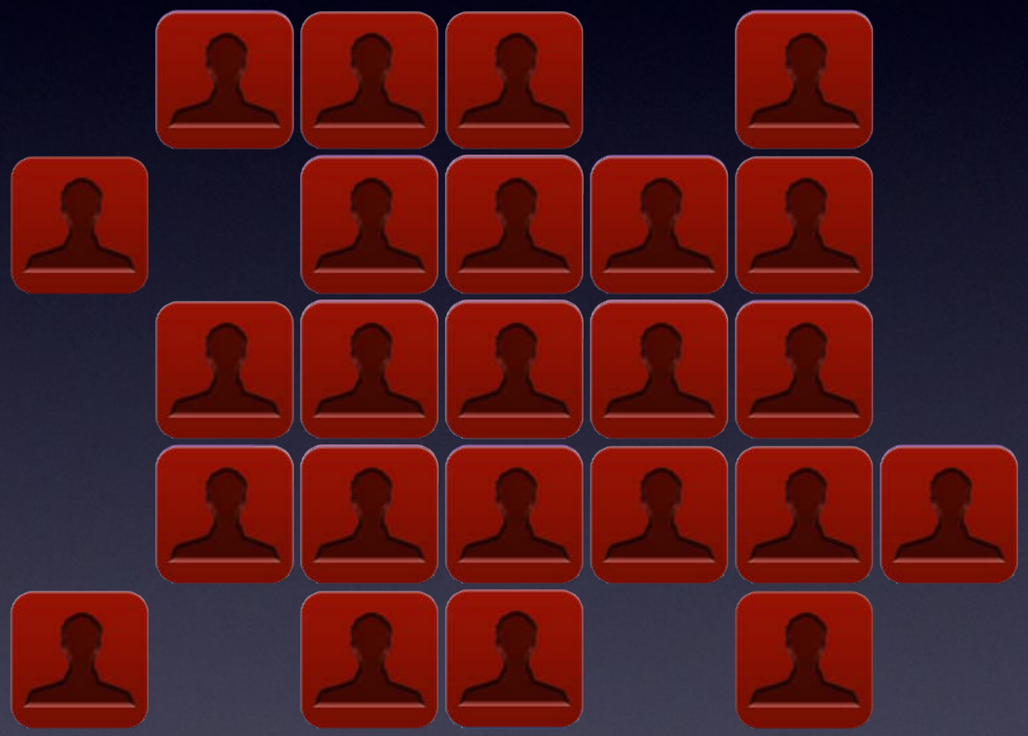
Sharing

Social Game Network

Sharing

Local multi-player

Social Game Network



Sharing

Local multi-player

Challenges

Social Game Network

Sharing

Local multi-player

Challenges

Game groups

Improved authentication

Unified interface

Turn timeouts

Host election

Multiplayer re-match

Turn match data saving

iOS

AirPlay

AirPlay

Stream audio

Stream video

Mirror to TV

Second display

Mirror to a TV

Mirror to a TV

AirPlay Mirroring from OS X

AirPlay Mirroring from OS X

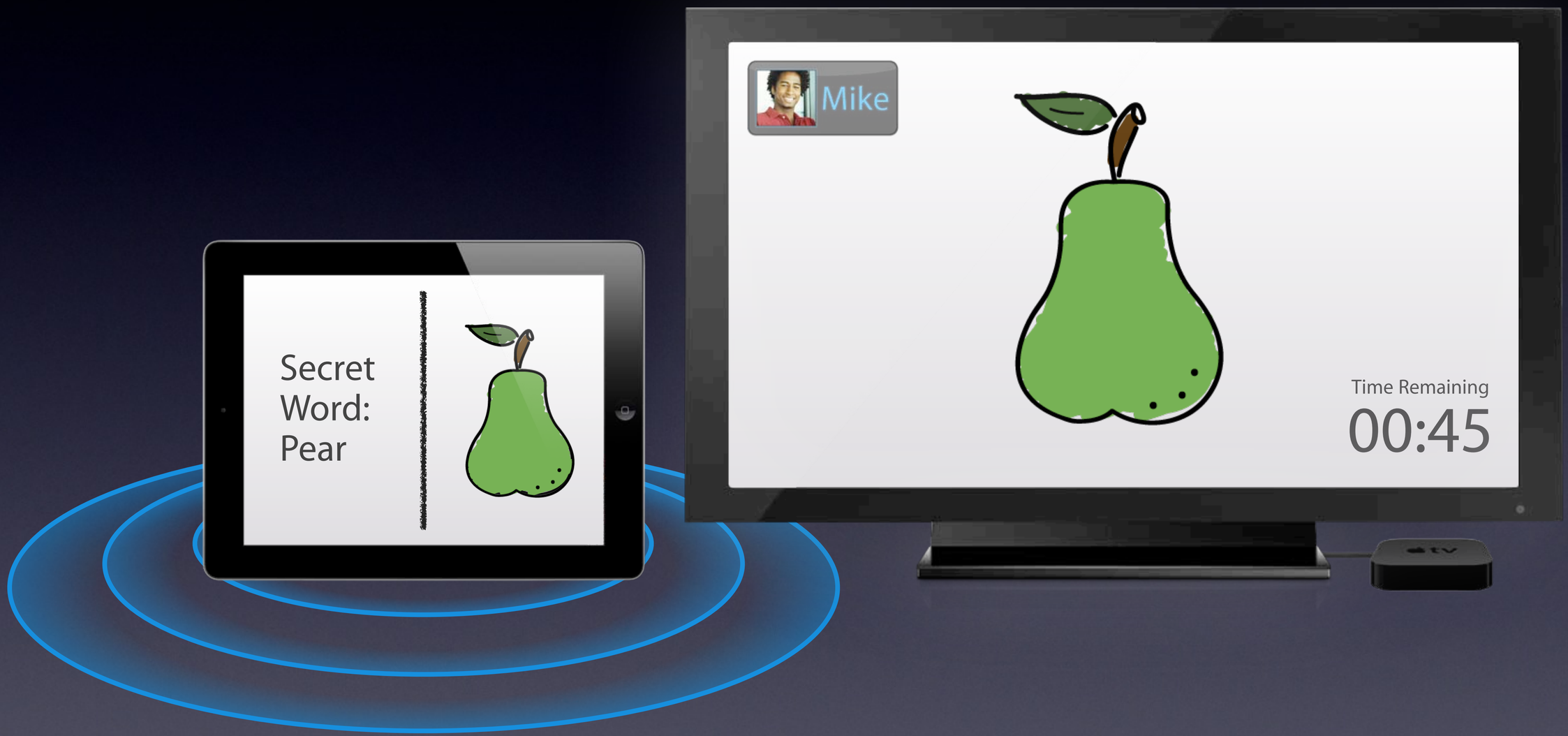
Second Display

Second Display

Action Game

Shared Experience

Shared Experience



Family Game Night

Family Game Night

BEECHERTON
Zannoli
POSITION
1/4
LAP
1/2
SPEED
76MPH
TIME
00:14.932
+00:01.256

Retina

Finder File Edit View Go Window Help
Mon 10:50 AM

17
Templar
Leah
Writhing Deceiver
Demon
City of Caldeum
1:40 PM
Objectives
A Royal Audience
Escape the Imperial Palace
13
17
7
Templar: The world is a safer place.
1
2
3
4
Q
0

Reminders

Completed

Reminders

Groceries

Ski Trip

Birthday Party

Wedding

Groceries

2 Completed

- [x] Milk & Eggs
- [x] Butter
- [ ] Bread
- [ ] Vegetables
- [ ] Napkins

Reminders

Completed

Reminders

Groceries

Ski Trip

Birthday Party

Wedding

Groceries

2 Completed

- [x] Milk & Eggs
- [x] Butter
- [ ] Bread
- [ ] Vegetables
- [ ] Napkins

Opt Into High Resolution OpenGL

Request high resolution on a per view basis

```
[self setWantsBestResolutionOpenGLSurface:YES];
```

Adjust glViewPort code to use correct pixel bounds

```
NSRect pixelBounds = [self convertRectToBacking:[self bounds]];
glViewPort( 0, 0, pixelBounds.size.width, pixelBounds.size.height );
```

Opt Into High Resolution OpenGL

Request high resolution on a per view basis

```
[self setWantsBestResolutionOpenGLSurface:YES];
```

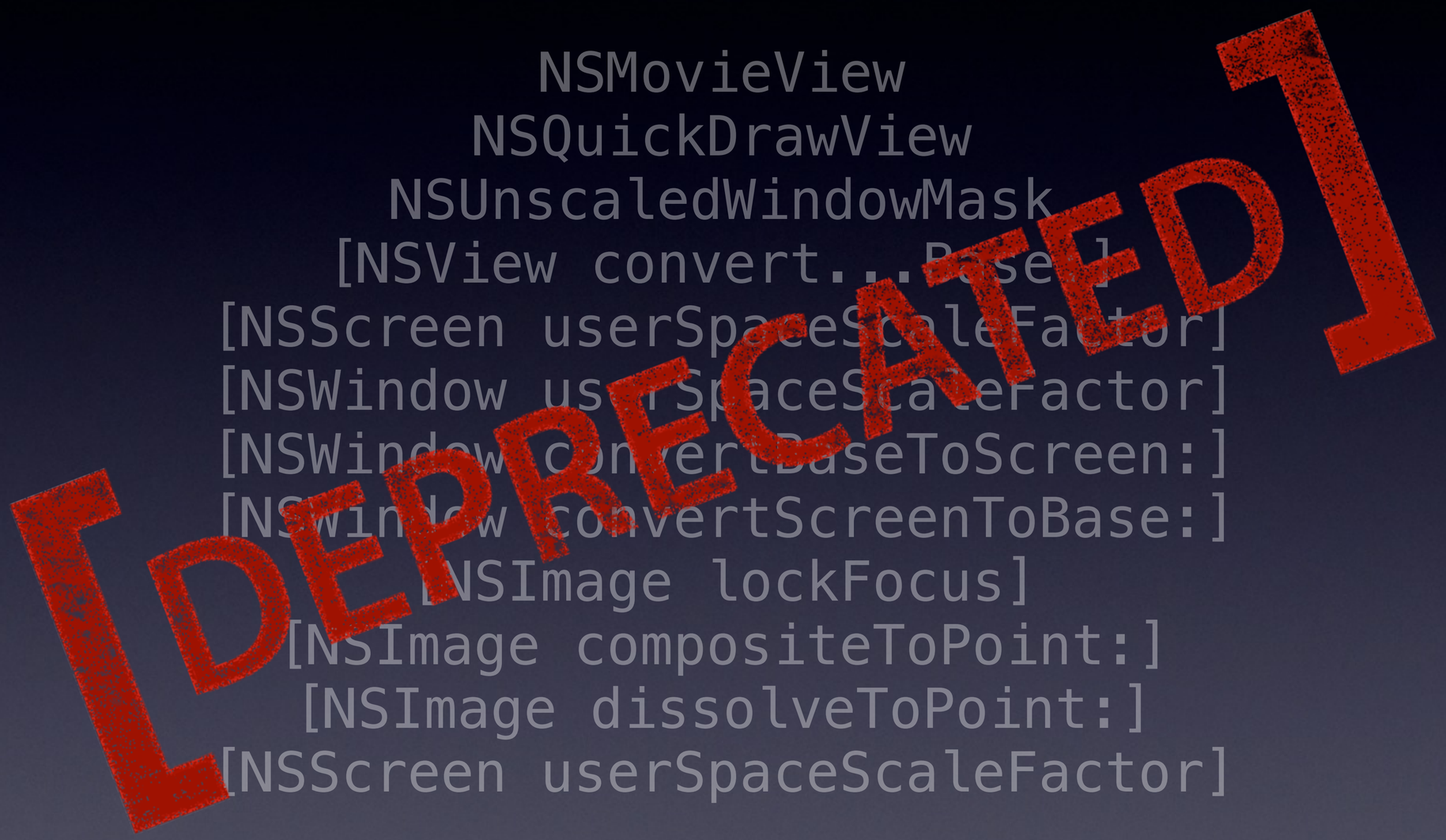
Adjust glViewPort code to use correct pixel bounds

```
NSRect pixelBounds = [self convertRectToBacking:[self bounds]];
glViewPort( 0, 0, pixelBounds.size.width, pixelBounds.size.height );
```

Eliminate Use of Deprecated APIs

NSMovieView
NSQuickDrawView
NSUnscaledWindowMask
[NSView convert...Base:]
[NSScreen userSpaceScaleFactor]
[NSWindow userSpaceScaleFactor]
[NSWindow convertBaseToScreen:]
[NSWindow convertScreenToBase:]
[NSImage lockFocus]
[NSImage compositeToPoint:]
[NSImage dissolveToPoint:]
[NSScreen userSpaceScaleFactor]

Eliminate Use of Deprecated APIs



Correct Code Using Points and Pixels

```
NSSize sizeInPixels = NSMakeSize(CGImageGetWidth(cgImage),
    CGImageGetHeight(cgImage));
```

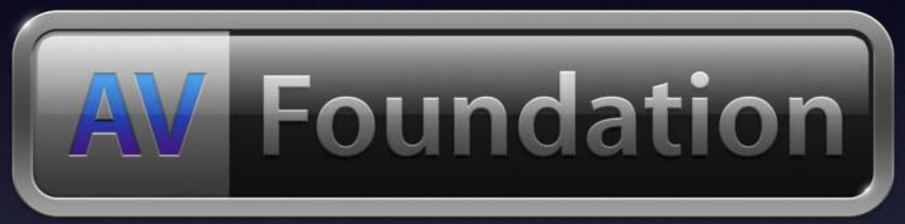
```
NSSize sizeInPoints = [screen convertSizeFromBacking:sizeInPixels;
NSImage *screenImage = [[NSImage alloc] initWithCGImage:cgImage
    size:sizeInPoints];
```

Correct Code Using Points and Pixels

```
NSSize sizeInPixels = NSMakeSize(CGImageGetWidth(cgImage),
    CGImageGetHeight(cgImage));
```

```
NSSize sizeInPoints = [screen convertSizeFromBacking:sizeInPixels;
NSImage *screenImage = [[NSImage alloc] initWithCGImage:cgImage
    size:sizeInPoints];
```

Retina



Realtime frame access

Independent media clocks

Advanced A/V Sync APIs

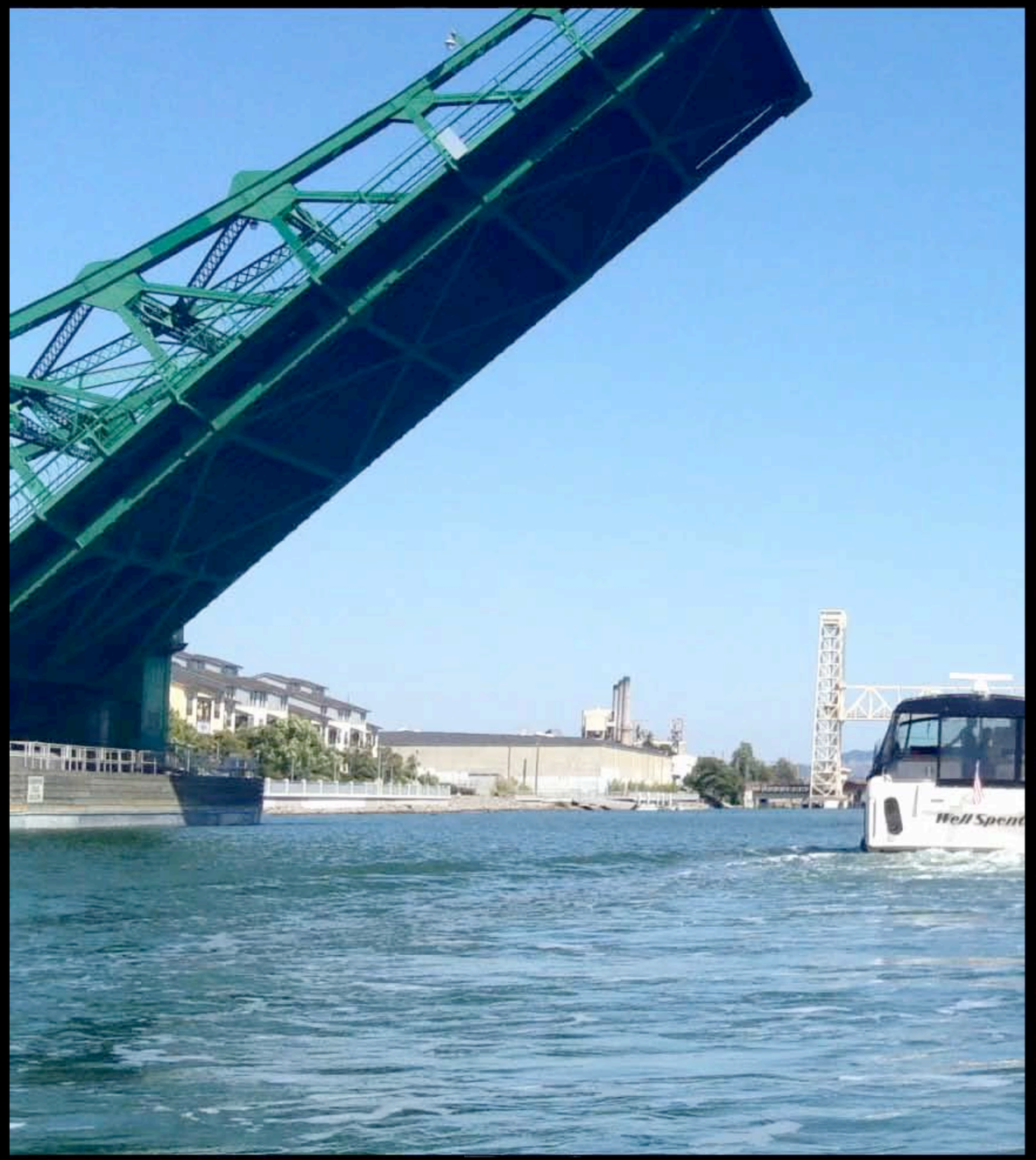
Face Detection

Focus, Exposure, and ROI

Sync motion and video

Realtime performance metrics

Video stabilization



Before

After

Video Image Stabilization

```
AVCaptureConnection *c = [output
  connectionWithMediaType:AVMediaTypeVideo];


if ( [c isVideoStabilizationSupported] )
  [c setEnablesVideoStabilizationWhenAvailable:YES];
```

Video Image Stabilization

```
AVCaptureConnection *c = [output
  connectionWithMediaType:AVMediaTypeVideo];

 if ( [c isVideoStabilizationSupported] )
  [c setEnablesVideoStabilizationWhenAvailable:YES];
```

Fully integrated

Fast math library

Easy texture loading

Effects library

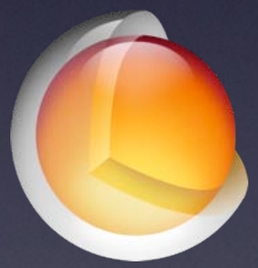
Demo

OpenGL

GLKit

OpenAL

AV Foundation



App Store

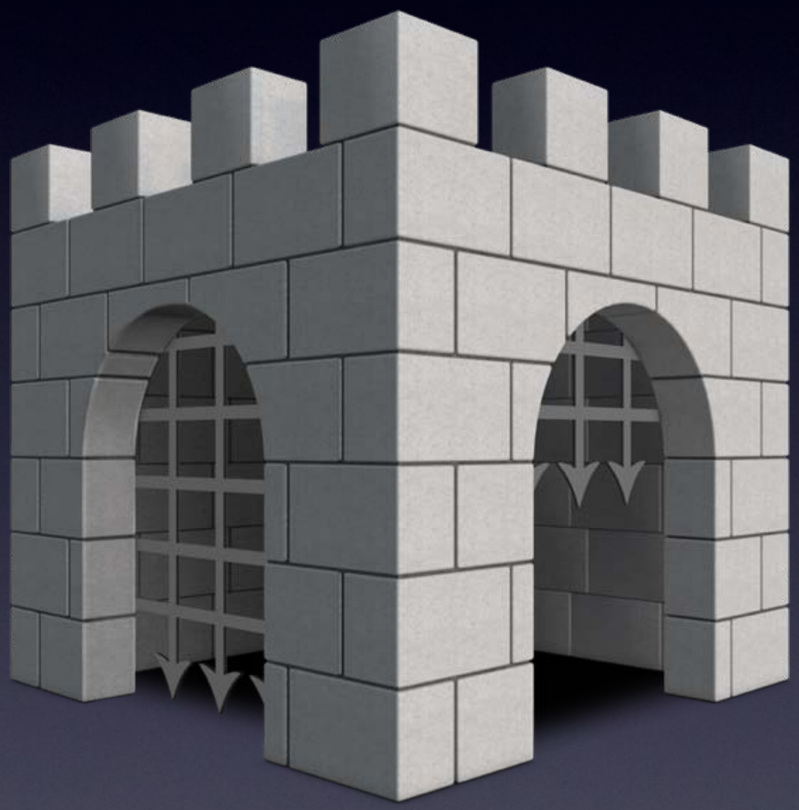
Trusted source

Verified developer identity

Sandboxed

Curated

Gatekeeper



For apps outside Mac App Store

Trusted source

Developer identity

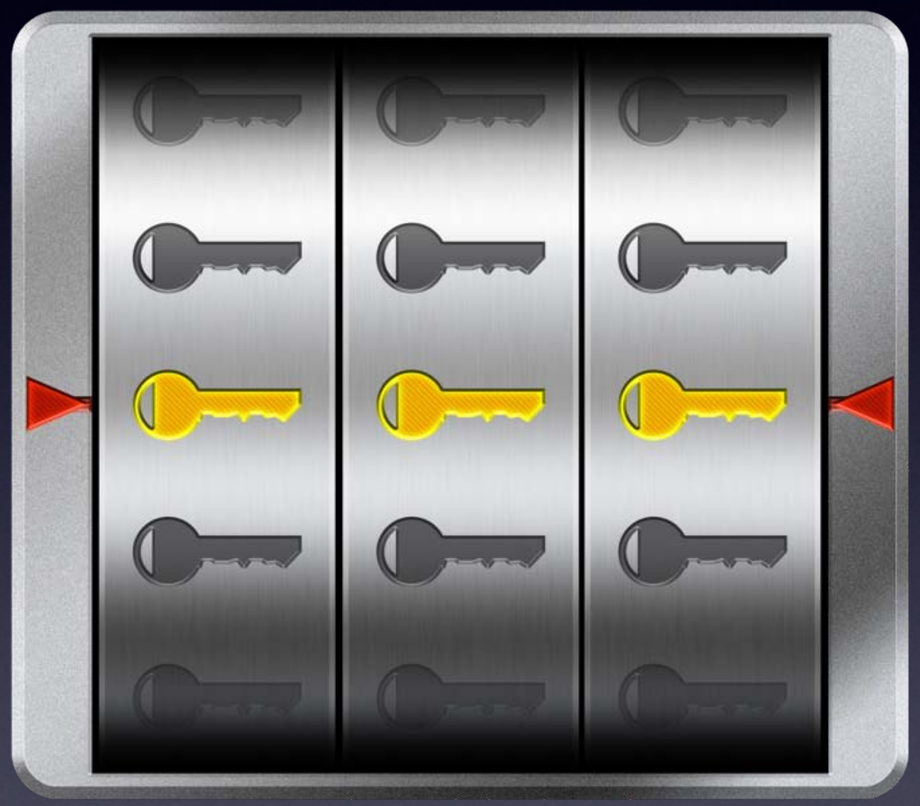
Protect against malware

Enroll Now

HTTPS

3G
9:41 AM
Monday
11
Messages
Calendar
Photos
Camera
Videos
Maps
280
Weather
73°
Passbook
Notes
Reminders
Clock
Game Center
Newsstand
iTunes
App Store
Settings
Phone
Mail
Safari
Music

Cryptography



For untrusted data destinations

Built into OS X and iOS

OS X: Security Transforms

iOS: Certificate, Key, and Trust Services

Keychain

Protect small secrets on the system

Built into iOS and OS X

Security framework

Keychain Services documentation

Data Protection

Built into iOS hardware

Enabled by passcode

Data unreadable when device locked

NSFileManager

- NSFileProtectionComplete

NSData

- NSDataWritingFileProtectionComplete

apple.com/ipad/business

Transparency

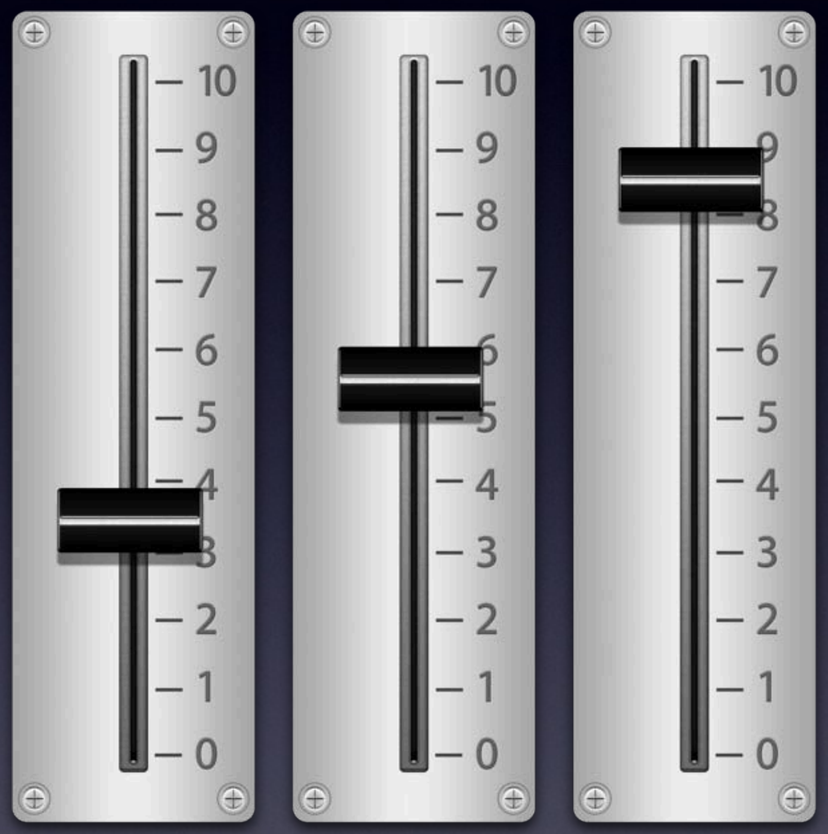
Provide your privacy statement

Submit via iTunes Connect

Say what’s collected and why

Collect as little as possible

Control



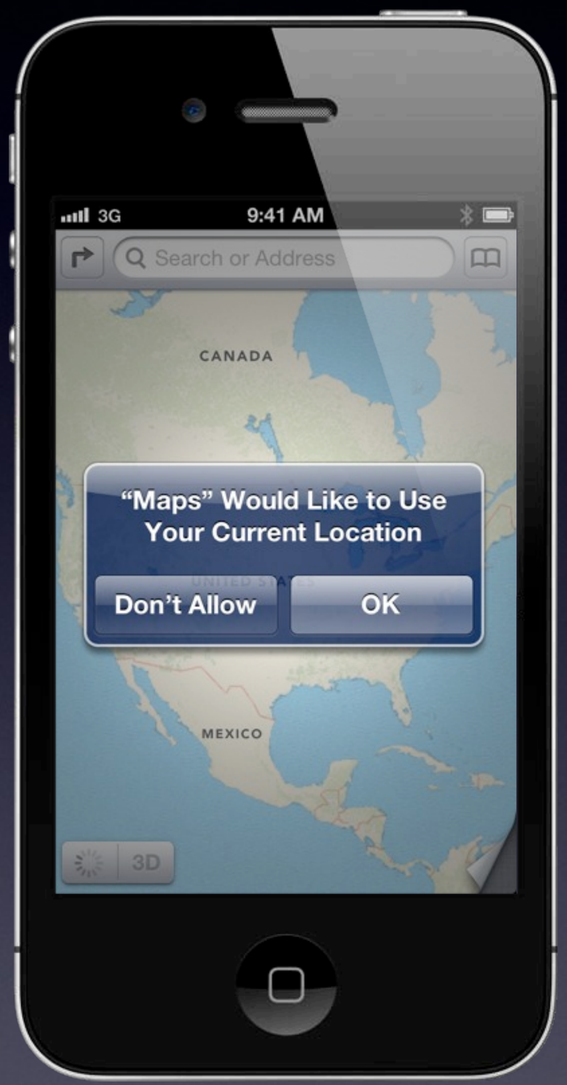
Ask for permission

Provide context and purpose

Allow changes

Fail gracefully

Data Isolation



Data Isolation

New in iOS 6

Data Isolation

Use purpose string in Info.plist

Fail gracefully

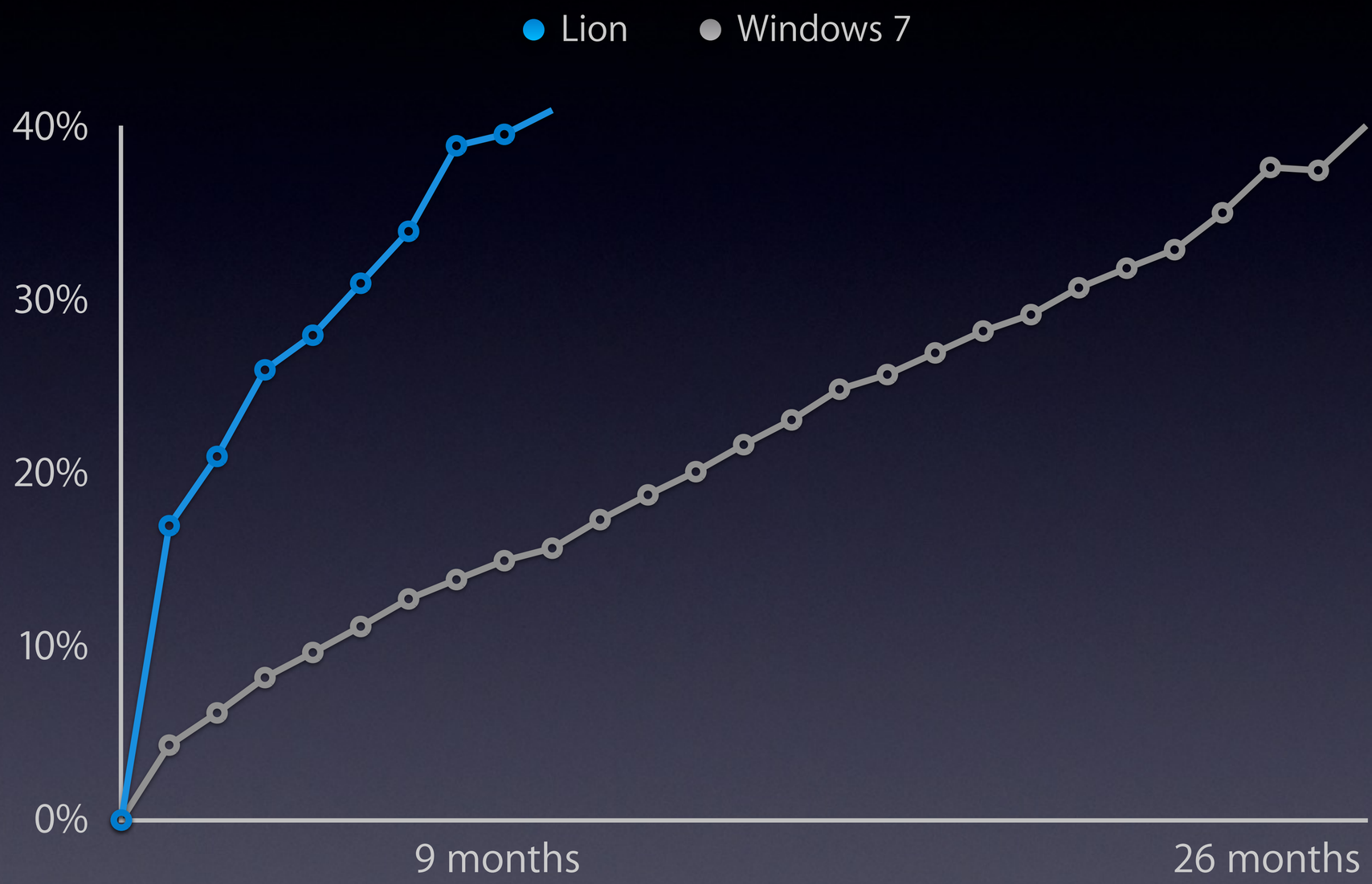
Privacy Settings

Unlimited Undo & Redo
Color palette
Precise control over font, text style, & paragraph settings
Writing Tools
PROJECT: APPLICATION.APP
ARCHITECT: XCODE
#1

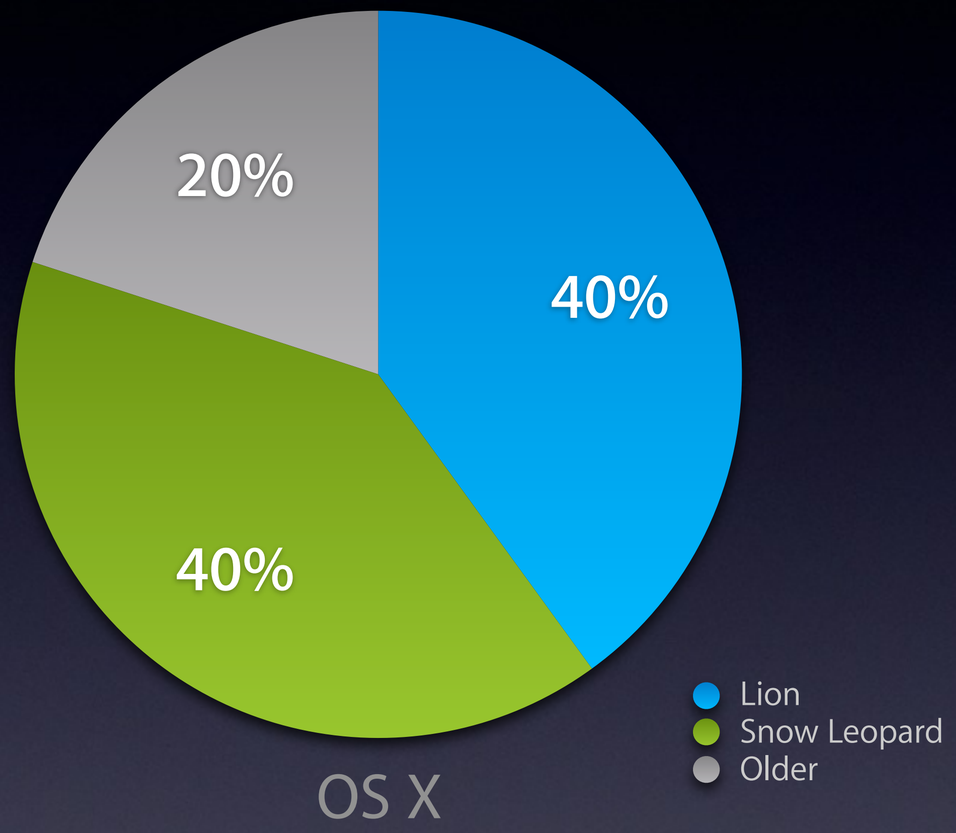
50 Million

Last quarter

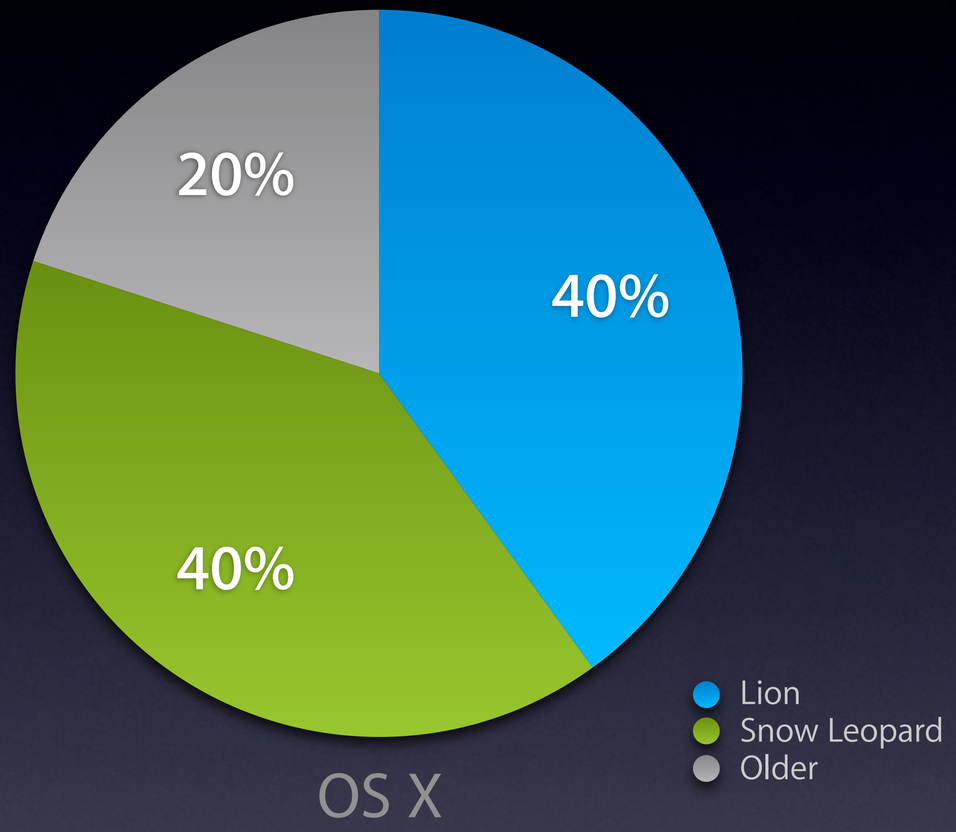
OS X Adoption Rate



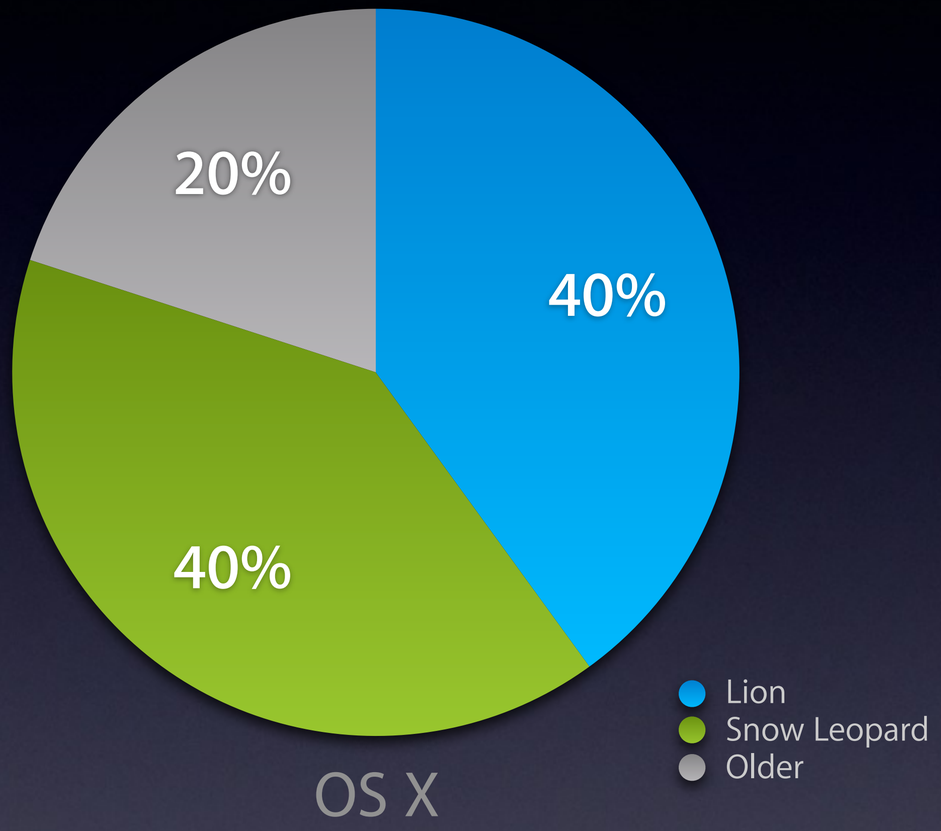
Net Applications, Jan 2012

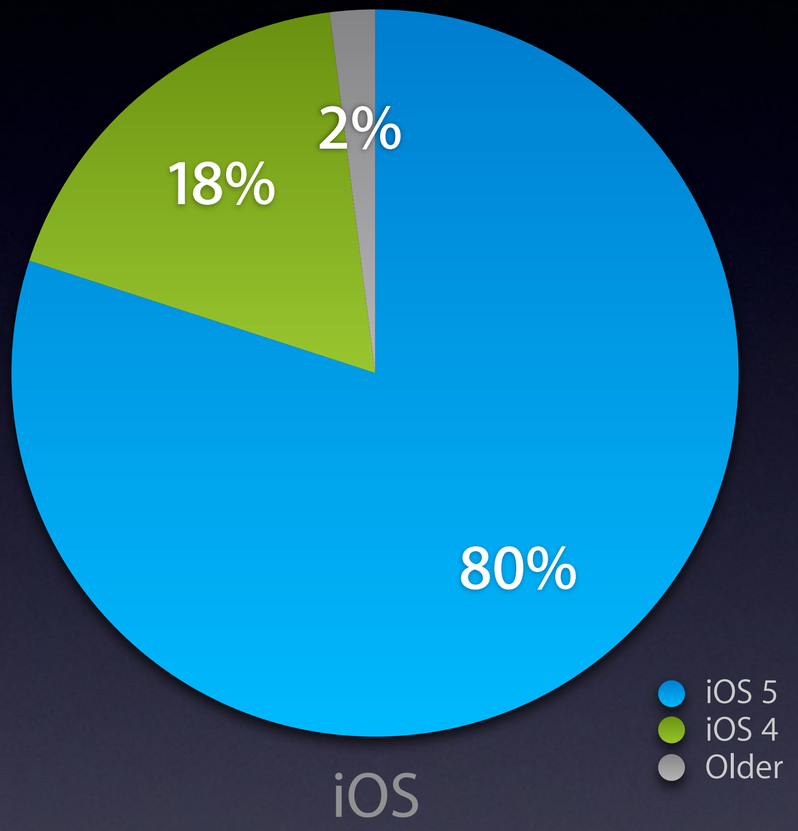


OS X



OS X


20%
40%
40%
Lion
Snow Leopard
Older
OS X


2%
18%
80%
iOS 5
iOS 4
Older
iOS

NSUserNotification

Reminders

SceneKit

Objective-C array / dictionary access syntax

HiDPI APIs

Audio & video sampling during playback

Web Audio API

Virtual Memory performance

VoiceOver gestures

Pass Kit

Game Groups

CSS filters

Face detection API

Social single sign-on

Remote Web Inspector

GameKit, GLKit

Notification Center API

Read and write image metadata

Geofencing

iCloud Documents API improvements

Game Center in-app experience

Objective-C XPC binding

Action Sheet

Dictation

Map Kit

Image metadata API

NSXPCConnection

Video stabilization

State preservation

Bluetooth MAP support

Crossfade with CSS animation

Twitter API

Transit apps

Objective-C literals

Page flip windowing system

Inter-app audio

Gesture APIs

Sandboxing APIs

CGDisplayStream

ShareKit

In-app Bluetooth pairing

Rich text on labels, fields, & text views

Frame drop data

Graphics power improvements

Layer backed views

In-app purchase hosted content

In-app content purchases

Auto-save improvements

Cloud library UI

Multi-route audio

Control camera focus and exposure

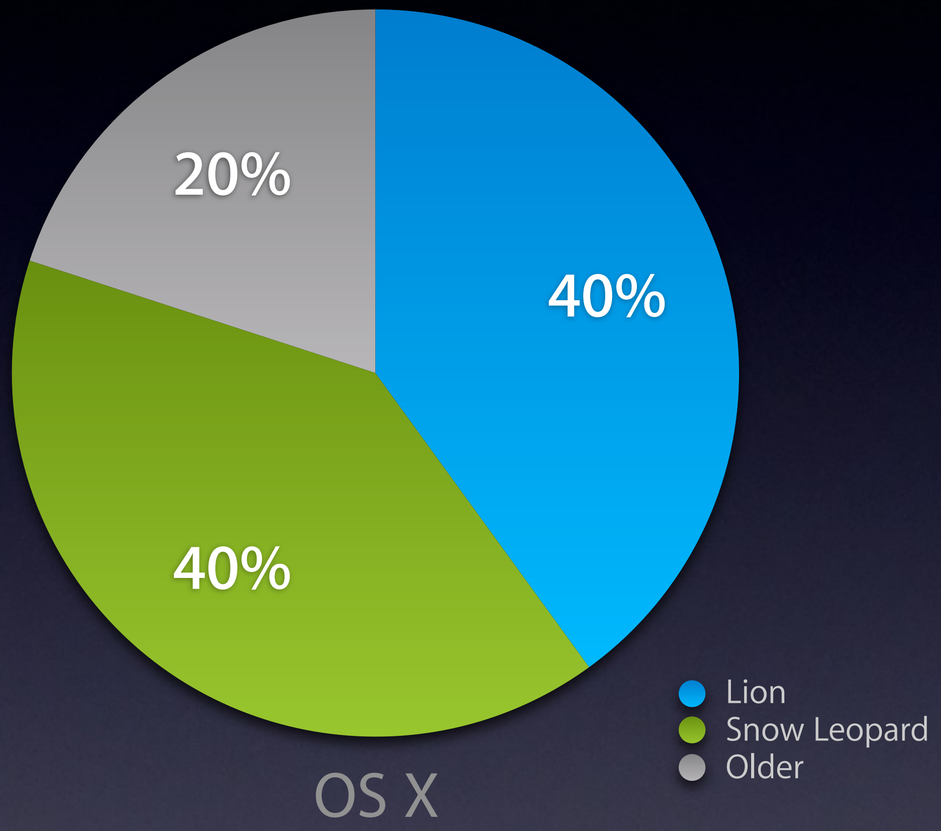
Collection views

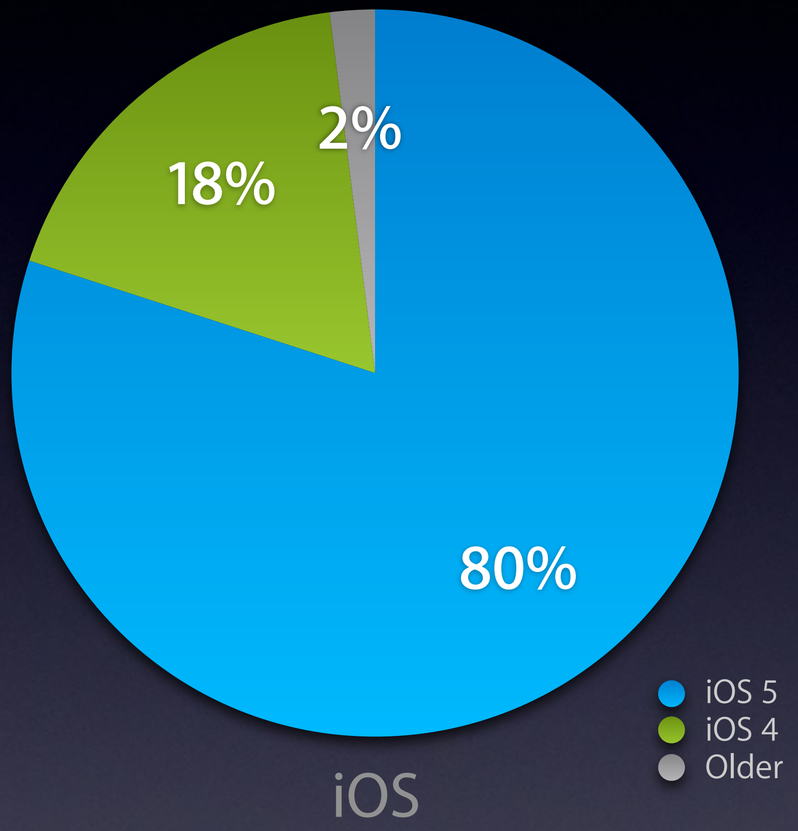
MacAppStore in-app purchase content hosting

GPU accelerated graphics

Pull to refresh on Table views

Auto Layout


20%
40%
40%
Lion
Snow Leopard
Older
OS X


2%
18%
80%
iOS 5
iOS 4
Older
iOS

```
int N = latestOSVersion();
int V = usersOSVersion();

if (V == N) {
    innovate();
} else if (V == N-1) {
    maybe();
} else if (V < N-1) {
    nope();
}
```

Xcode

Unlimited Undo & Redo
Color palette
Precise control over font, text style, & paragraph settings
Writing Tools
PROJECT: APPLICATION.APP
ARCHITECT: XCODE

Monday
11
SDK

Monday
11
SDK

5.1

6

Deployment Target

Xcode 4.4

Xcode 4.5

developer.apple.com/wwdc

Xcode 4.4

Xcode 4.5

Color palette
Liberate Lions
& Rams
Process approval
over Dorf, navy
style, & paragon
settings
Transparency
Effects
Paint spacing
Alignment
Layers
Widget Tools
PROJECT: APPLICATION
ARCHITECT: X.2006

Universal Localization Workflow

Interface Builder Support For New Views

ICNS File Creation

LLDB Function Return Values

Improved LLDB

LLDB Data Visualizers

Integrated OpenGL ES Performance Detective

New Instruments Zoom Slider

ARC Converter For GC

Much Faster Search

Watchpoints On Devices

Quick Help in Code Completion

Commit To Branch

Caller/Callee Assistant

iOS Auto Layout

More Performance Instrumentation

FPS Meter In Debugger

Replace In Selection

SceneKit Editor

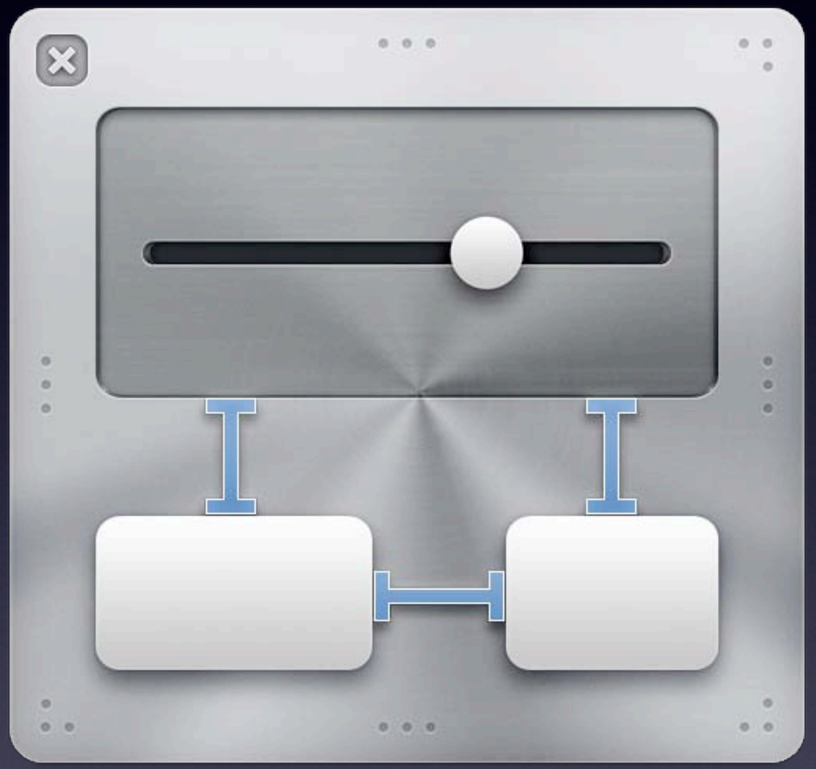
Manage In-App Purchase Content

Commit Individual Changes

Static Analysis Across Functions

Token Based Regular Expression Search

Auto Layout for iOS



Demo

LLVM

GCC → LLVM

GDB → LLDB

LLVM

LLDB

C++

C++ in LLVM

4.0

C++ in LLVM

4.0

C++'11

4.2

New libc++
Auto-typed variables
Range-based for loops
Variadic templates

Non-static data member initializers
Delegating constructors
Implicitly-defined move constructors

4.3

C++ in LLVM

4.0

C++'11

4.2

New libc++
Auto-typed variables
Range-based for loops
Variadic templates

Non-static data member initializers
Delegating constructors
Implicitly-defined move constructors

4.3

C++ in LLVM

4.0

4.2

New libc++
Auto-typed variables
Range-based for loops
Variadic templates

Non-static data member initializers
Delegating constructors
Implicitly-defined move constructors

4.3

4.4

Lambda functions
Generalized initializer lists
Atomics

Objective-C

Simpler, Faster, Safer

Simpler, Faster, Safer

Simpler, Faster, Safer

Simpler, Faster, Safer

Properties

Non-fragile instance variables

Fast enumerators

Blocks

Associative storage

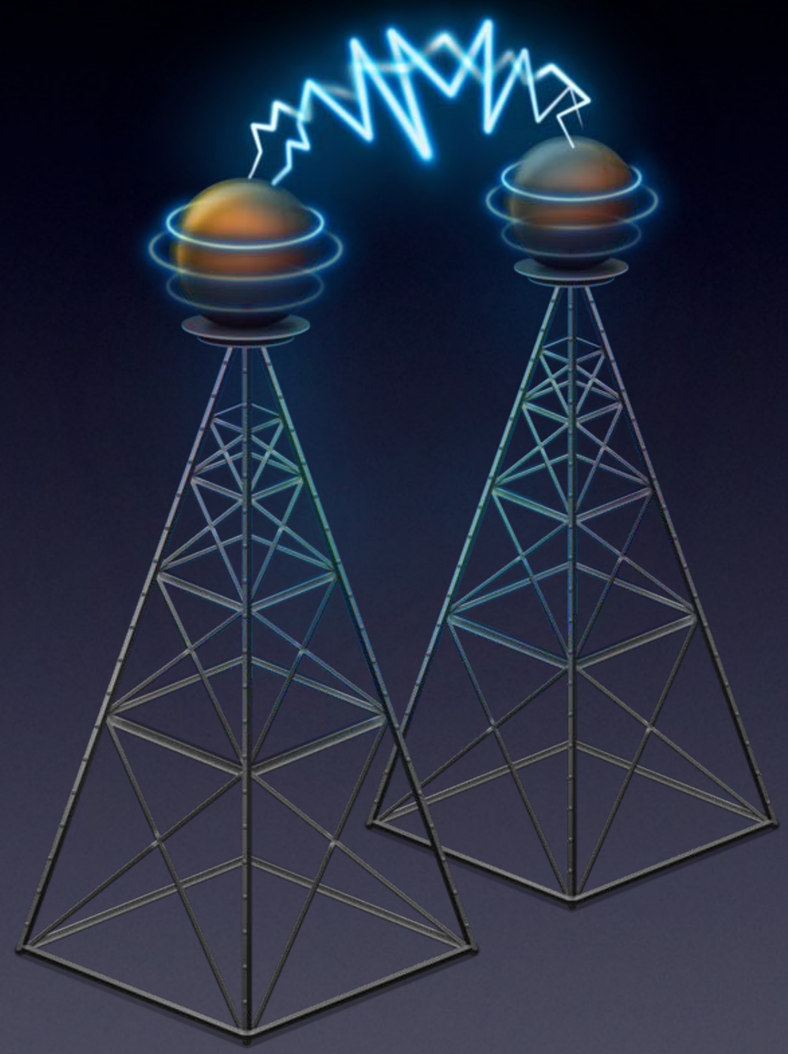
Automatic Reference Counting (ARC)

Instance variable declarations in class extensions

Related return type

No need to forward declare methods

Automatic Reference Counting



Garbage Collection

Garbage Collection

DECAGE 1
БЕРКЕЛ

ARC Translator for GC

```objc
id object;
NSEnumerator *enumerator;

enumerator = [array objectEnumerator];
while ((object = [enumerator nextObject])) {
    [object saveContent];
}
```

```objc
for (id object in array) {
    [object saveContent];
}
```

```
@implementation Stack {
    NSMutableArray *array;
}

- (id)init {
    if (self = [super init]) {
        array = [[NSMutableArray array] retain];
    }
    return self;
}
- (void)dealloc {
    [array release];
    [super dealloc];
}

- (void)push:(id)x {
    [array addObject:x];
}
- (id)pop {
    id x = [[array lastObject] retain];
    [array removeLastObject];
    return [x autorelease];
}
@end
```

```
@implementation Stack {
     NSMutableArray *array;
}

- (id)init {
     if (self = [super init]) {
        array = [NSMutableArray array];
    }
     return self;
}

- (void)push:(id)x {
    [array addObject: x];
}
- (id)pop {
    id x = [array lastObject];
    [array removeLastObject];
    return x;
}
@end
```

Literals & Boxing

```
[NSNumber numberWithInt:42]

[NSNumber numberWithDouble:10.8]

[NSNumber numberWithBool:YES]

[NSNumber numberWithInt:6 + x * 2012]
```

Literals & Boxing

```
42

10.8

YES

 6 + x * 2012
```

Literals & Boxing

```
@42

@10.8

@YES

@(6 + x * 2012)
```

Collection Subscripting

```
[NSArray arrayWithObjects:a, b, c, nil]

[array objectAtIndex:i]

[NSDictionary dictionaryWithObjectsAndKeys:v1, k1, v2, k2, nil]

[dictionary valueForKey:k]
```

Collection Subscripting

```
a, b, c

array i

  k1 v1  k2 v2

dictionary k
```

Collection Subscripting

```
@[a, b, c]

array[i]

@{k1:v1, k2:v2}

dictionary[k]
```

Automatic Property Synthesis

```
@synthesize property;
```

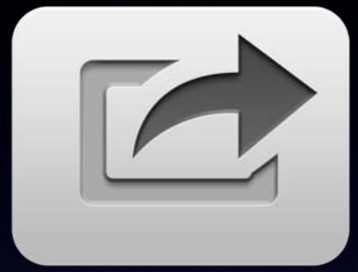
Automatic Property Synthesis

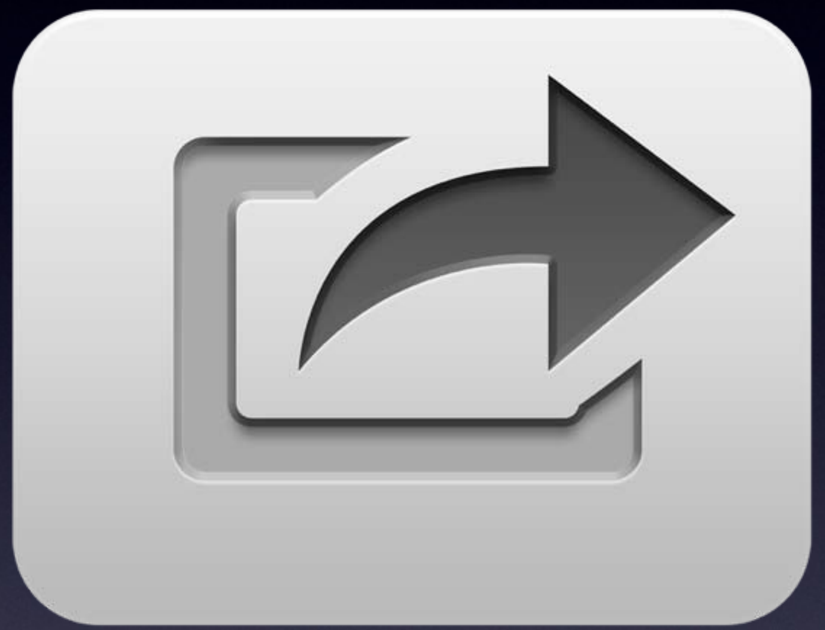
Literals and Boxing

Collection Subscripting

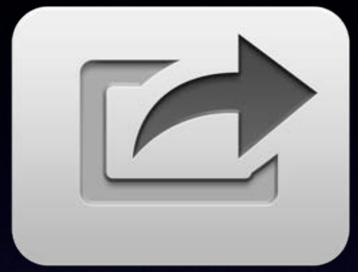
Automatic Property Synthesis

Color palette
Unlimited Undo & Redo
Precise control over font, text style, & paragraph settings
Writing Tools
PROJECT: APPLICATION.APP
ARCHITECT: XCODE





Unlimited Undo & Redo
Color palette
Precise control over font, text style, & paragraph settings
Writing tools
PROJECT:
ARCHITECT:



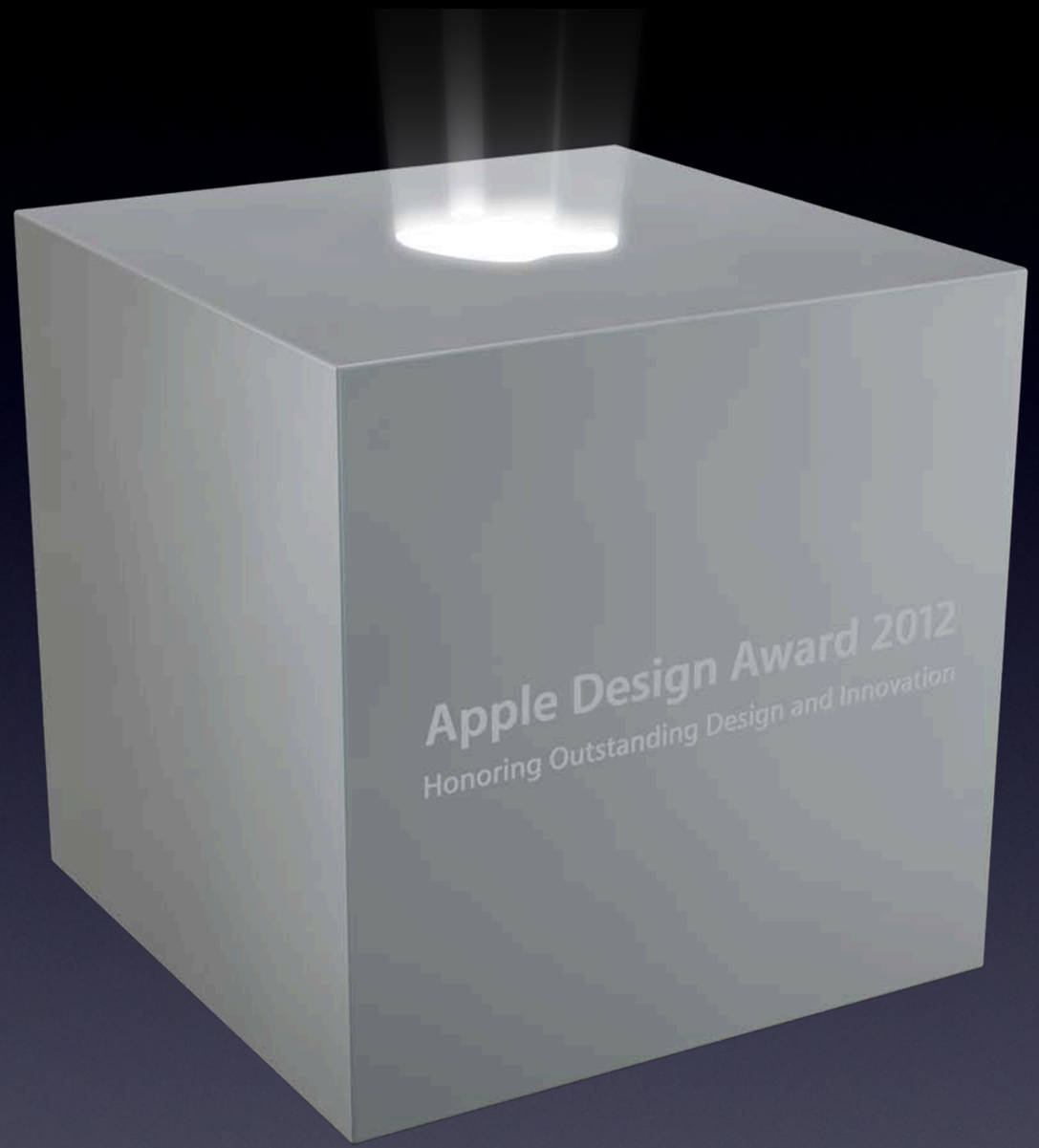
6

Color palette
Transparency
Writing tools
Alignment
Color tool
Writing Tools
PROJECT: APPLICATION.APP
ARCHITECT: X.CODE

112 sessions

125 labs

1000+ Apple engineers


Apple Design Award 2012
Honoring Outstanding Design and Innovation

WWDC2012