

Polishing Your App

Tips and tricks to improve the
responsiveness and performance

Session 105

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iOS Frameworks Engineer

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

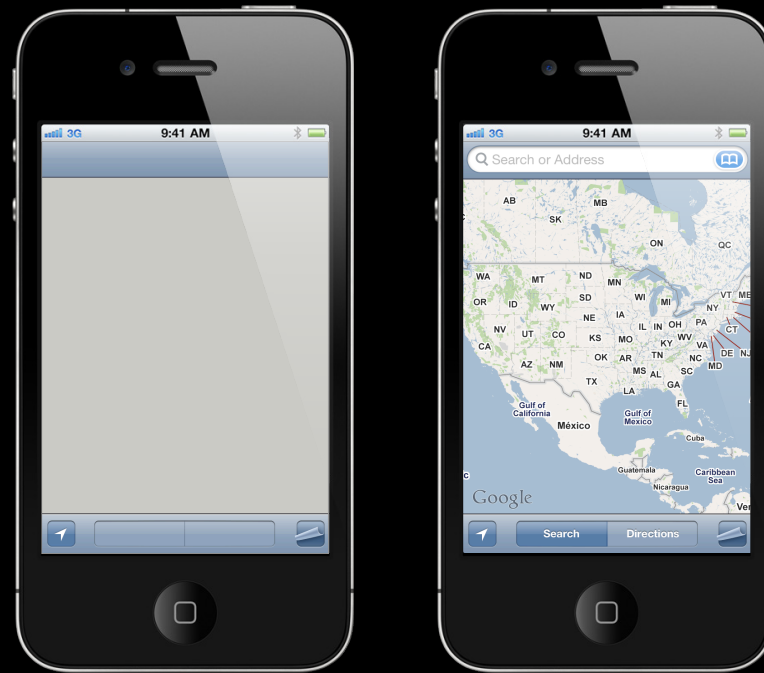
Agenda

- First launch
- Workflow
- Responsiveness
- Details

First Launch

First Launch

Launch image



First Launch

Avoiding ★☆☆☆☆ reviews



- Watchdog kills unresponsive apps
 - “Crashes on launch”: ★☆☆☆☆

First Launch

Hidden hangs

- BSD DNS API

 - `gethostbyname()`

 - `gethostbyaddr()`

- Reachability

 - Use asynchronous methods

 - Embedded in many analytics packages

First Launch

Be discrete



- The “Giant NIB” is easy
 - But slow
- Avoiding the “Giant NIB”
 - Consider using storyboards for apps targeting iOS 5or
 - Break into discrete NIBs for apps targeting iOS 4.x

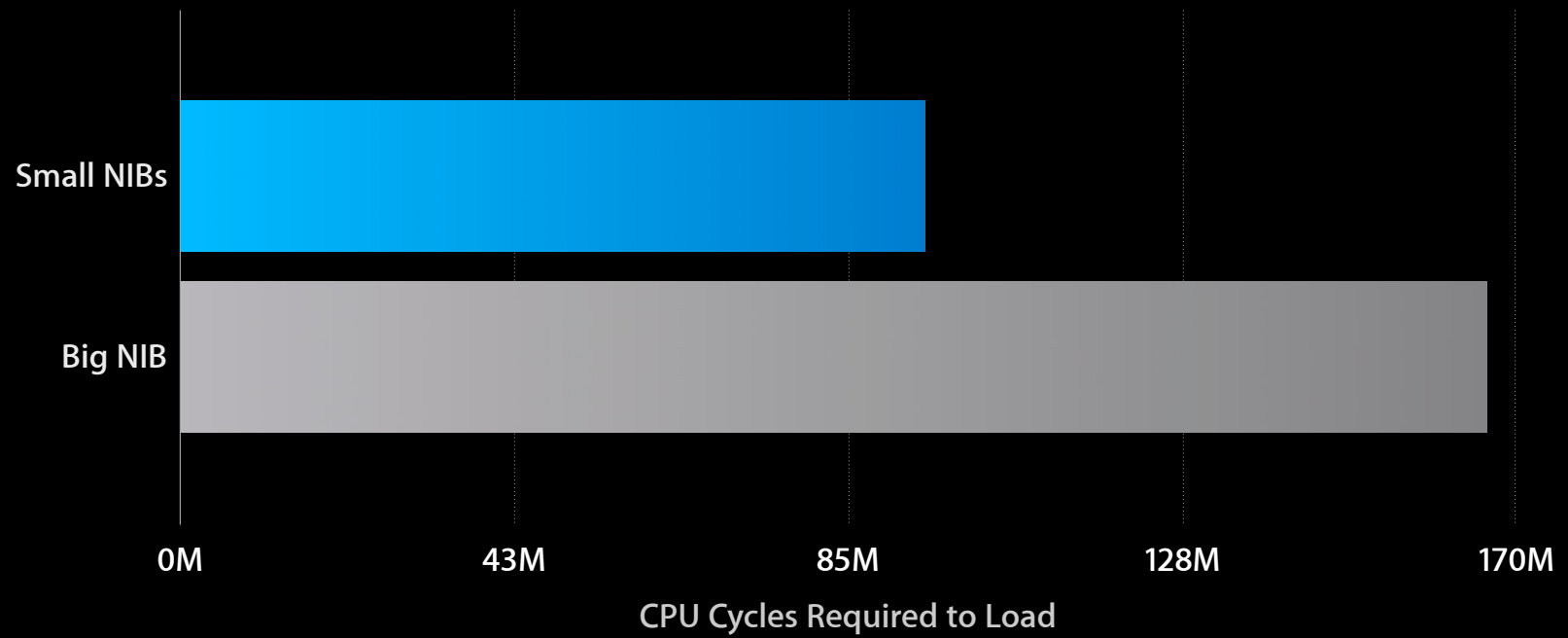
First Launch

Watch those NIBs!



First Launch


NIB size matters



First Launch

Lazy load UI resources

```
- (id)initWithNibName:(NSString *)nibNameOrNil bundle:(NSBundle *)
nibBundleOrNil {
    if ((self = [super initWithNibName:nibNameOrNil bundle:nibBundleOrNil])
        {
            self.myLargeImage = [UIImage imageNamed:@"Massive Image.png"];
        }
    return self;
}
```



First Launch

Lazy load UI resources

```
- (void)viewDidLoad
{
    [super viewDidLoad];
    self.myLargeImage = [UIImage imageNamed:@"Massive Image.png"];
}
```



Workflow

Workflow

Avoiding alerts

- Interrupt flow
- Can only represent small amounts of text
- Inappropriate use annoys the user

Alerts

Ratings nag

Rate the presentation

If you've enjoyed the presentation, would you mind taking a moment to rate it? It won't take more than a minute. Thanks!

Remind me later

Rate the presentation

No, Thanks

Alerts

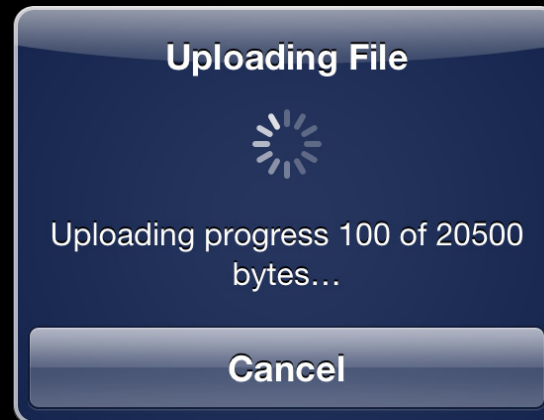
Errors

Network Error
Unable to contact server. Error 500

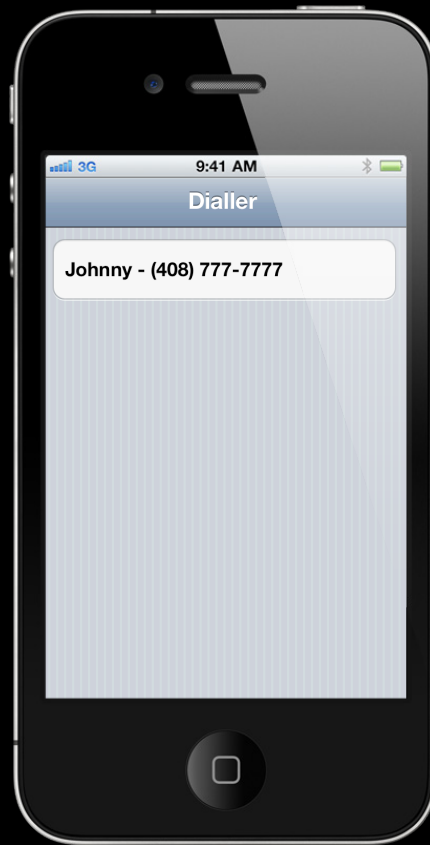
Dismiss

Alerts

Progress



Alerts



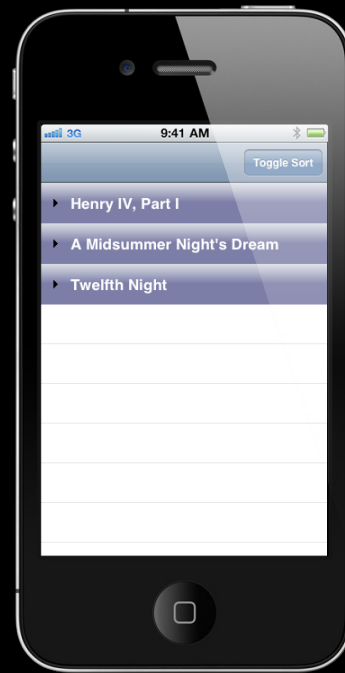
Alerts

Appropriate uses

- Offer critical information and choices
- Use spelchek!
- Refer to the iOS Human Interface Guidelines

Minimizing Taps

Use table view cells to improve locality



Workflow

User experience

- For more information, attend the following session:

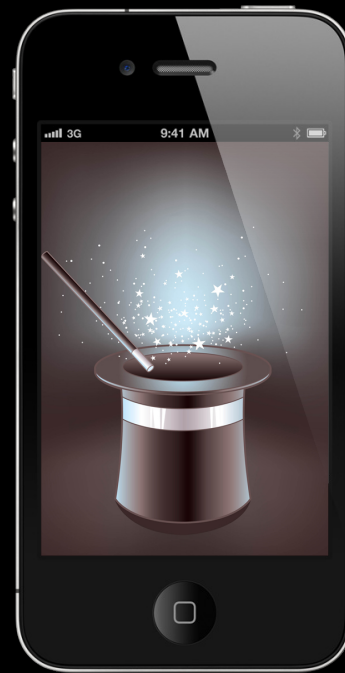
Designing User Interfaces for iOS and Mac OS X Apps

Pacific Heights
Wednesday 9:00AM

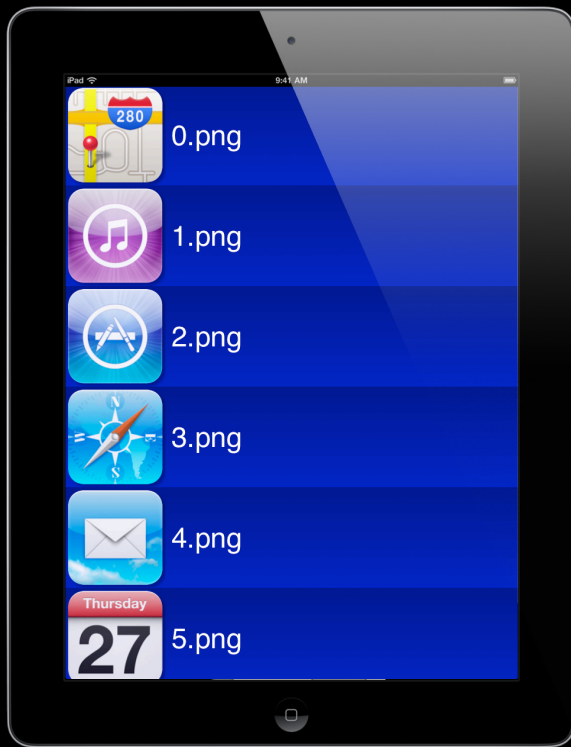
Responsiveness

Responsiveness

Preserving the illusion!



Responsiveness



- Network resources
- Images
- Table views

Network Resources

NSURLConnection basics



+ `sendSynchronousRequest:returningResponse:error:`



+ `connectionWithRequest:delegate:`

Network Resources

Cancel unneeded connections



Network Resources

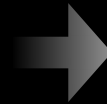
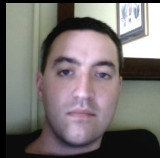
Use cached resources

- NSURLRequest
 - Caching policies
- Server-side considerations
 - RFC 2616, Section 13
 - `Last-Modified` entity-header
 - `Etag` response-header

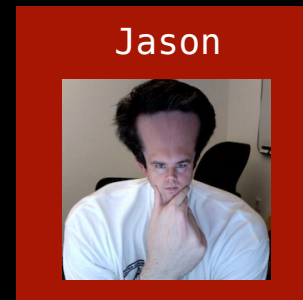
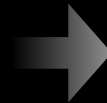
Network Resources

Incrementally process data

```
{"1" : {  
  name: "Ian Baird",  
  avatar: "  
  "  
  width: "150",  
  height: "150",  
},  
"2": {  
  name: "Jason Beaver",  
  avatar: "  
  "  
  width: "150",  
  height: "150",  
}}}
```



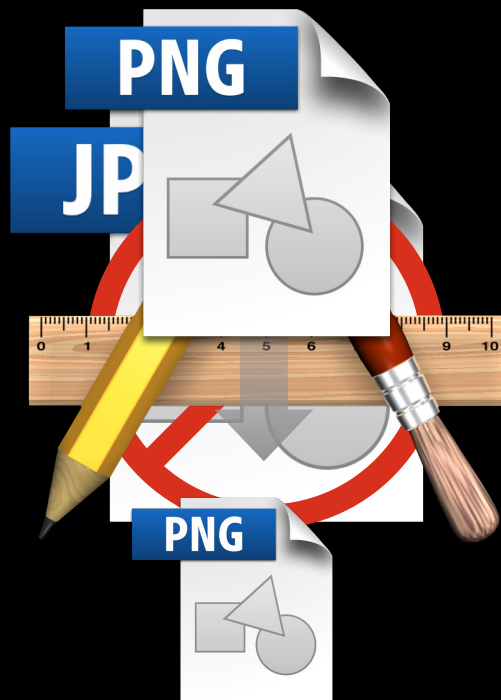
```
  "  
  width: "150",  
  height: "150",  
},  
"2": {  
  name: "Jason Beaver",  
  avatar: "  
  "  
  width: "150",  
  height: "150",  
}}}
```



```
  "  
  width: "150",  
  height: "150",  
}}}
```

Images

Optimizing resources

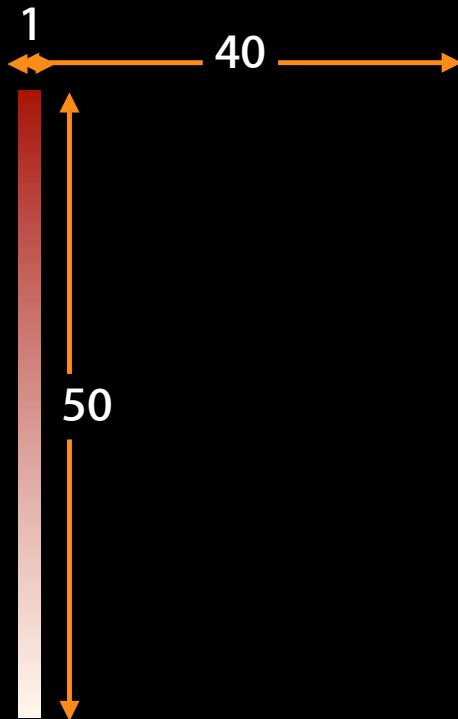


- JPGs are expensive
- PNGs in the app bundle optimized
- External PNGs need to be optimized

```
pngcrush -iphone -f 0 orig.png  
optimized.png
```

Images

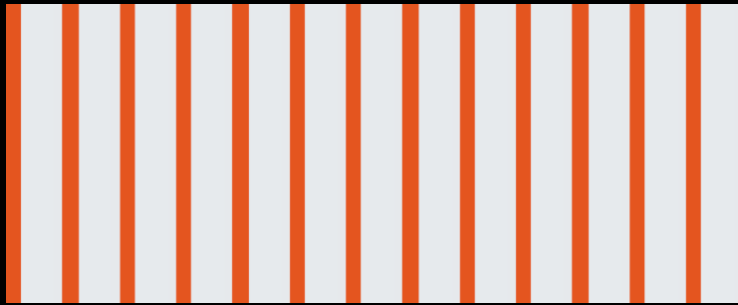
Stretching



- Uniform image
 - Gradients

Images

Tiling



- Regular pattern
 - Factor into a tileable image

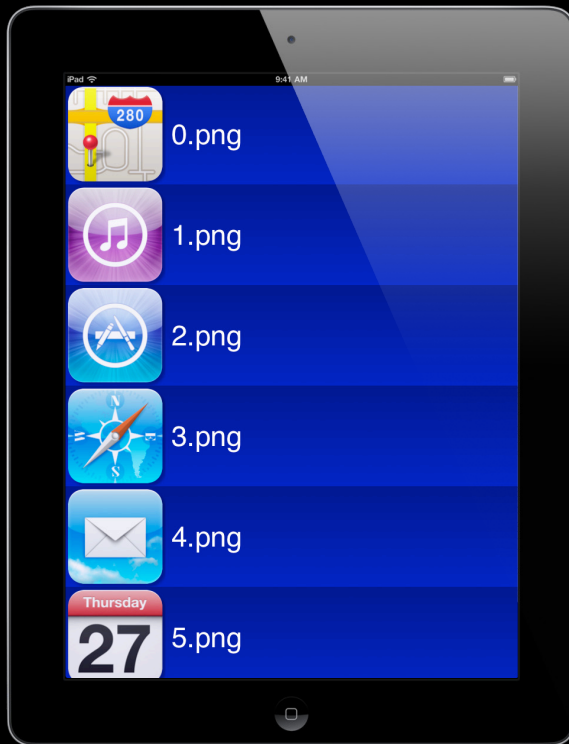
Responsiveness

Caching artwork

- Rendered artwork?
 - Consider using NSCache
- Contents evicted during memory pressure
- Avoid the “abandoned memory” problem

Table View

Table views and cells



- Custom table views and cells are great
 - Can hurt performance
- Use Instruments to find hotspots

Demo

Responsiveness

Table views and cells

- Do not fight the API
- Use Instruments to find the hotspots
- Re-use table view cells

Details

Details

- Appearance
- Animation
- Status bar
- State saving

Appearance

Hackless customization



Details

Appearance API

- For more information, attend the following sessions:

Designing User Interfaces for iOS and Mac OS X Apps

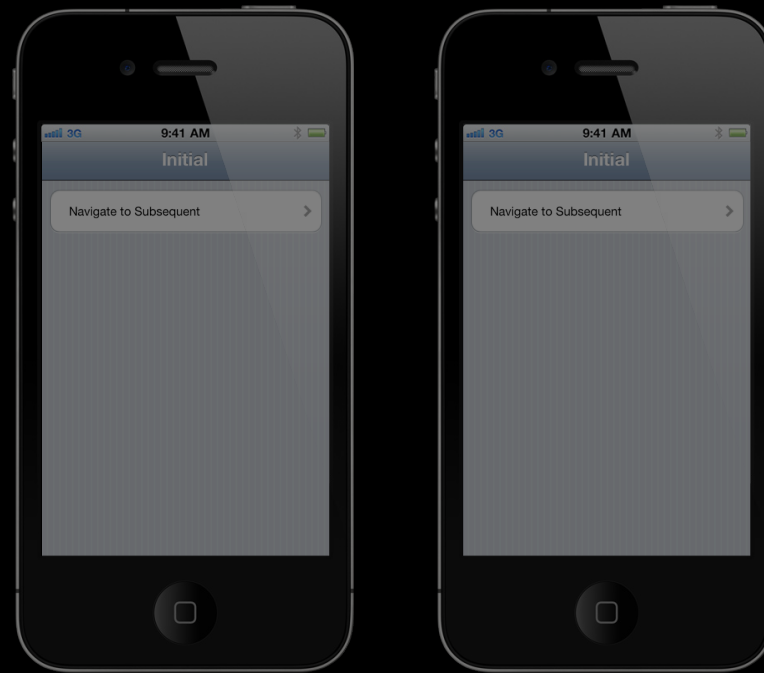
Pacific Heights
Wednesday 9:00AM

Customizing the Appearance of UIKit Controls

Presidio
Wednesday 2:00PM

Animation

View controller navigation



Animation

Scrolling bounce



Details

Status bar



- Hide the status bar if app is a game or has full-screen media
 - Chrome retrieval by a single tap
- Display network status indicator when needed
- On iPhone set appropriate color and animation of colors

Details

State saving

- Navigational state
- Partially filled text fields (nothing secure)
- Scroll position

Summary

- First launch
- Workflow
- Responsiveness
- Details

More Information

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Documentation

iOS Human Interface Guidelines

<http://developer.apple.com/library/ios/#documentation/UserExperience/Conceptual/MobileHIG/Introduction/Introduction.html>

Apple Developer Forums

<http://devforums.apple.com>

Related Sessions

Designing User Interfaces for iOS and Mac OS X Apps

Pacific Heights
Wednesday 9:00AM

Customizing the Appearance of UIKit Controls

Presidio
Wednesday 2:00PM

Improving the Stability of Your Apps

Presidio
Thursday 11:30AM

Lab

Cocoa Touch Lab

Application Frameworks Lab D
Wednesday 2:00PM

