Architecting a complex iPhone application

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So What’s The Problem?

- No Apple examples of full featured applications
- Books cover implementation of features, but not architecture
- Developers tend to start with examples and evolve - leading to poor architecture
Application Tasks

- First Launch
- News Preferences
- Location Acquisition
- Story Load, Caching
Application Tasks

• Relaunch Update
• Recheck Location
• Check Data Freshness
• Update Data
Application Tasks

• Handle User Activity
• Story Reading
• Queries
• Sharing...
• Advertising
• Image Caching
• Saving State...
Design Challenge

- Application Design
- Managing Long Running Tasks
- Managing Concurrency
- Managing Variable Connectivity
- Managing Data
- Managing State
- Managing Complexity
Advanced Technology

- Singletons
- Notifications
- Threads
- NSOperation/NSOperationQueue
Singletons

- Decoupled Objects
- Data Managers
- Cache Managers
- State Managers
- Specialty Controllers (e.g. LaunchController)
- NSApplication, NSUserDefaults, etc...
Singletons

UIImage *userPic =
    [[ImageCache shared] cachedImageForKey:[user name]];
...
+(id)shared {
    static ImageCache *shared = nil;
    if(!shared){
        shared = [[ImageCache allocWithZone:NULL] init];
    }
    return shared;
}
Notifications

• More Object Decoupling
• Status Notification
• State Change
• Pub/Sub Events
• NSNotificationCenter
Notifications

[[NSNotificationCenter defaultCenter] addObserver:self
 selector:@selector(updateHUD:)
   name:@"TweetStatusNotification"
  object:nil];

...

- (void) updateHUD:(NSNotification *)notification {
  if (nil != self.view.window) {
    NSString *msg = [[notification userInfo] valueForKey:@"Message" ];
    [[HUDManager shared] showMessage:msg ];
  }
}
Threads

- UIKit & Foundation Support
- performAfterDelay
- Background execution with delegate callback (NSHTTPConnection, etc)
- NSThreads, NSOperationQueues
Process Challenge

- Application Development
- Managing Development Cycles
- Managing Teams
- Managing Releases
- Testing and QA
- Code Reuse
Advanced Process

- Hyper-Agile Methodology
- Daily Iterations
- Partial Pair Programming
- Monthly Releases
Advanced Process

- Code Reuse Strategies
- Static Libraries
- Overlapping Projects

Project 1

Project 2

Shared Code
Q&A

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