CodeFab LLC
iPhone Development & Training

Architecting a complex iPhone application
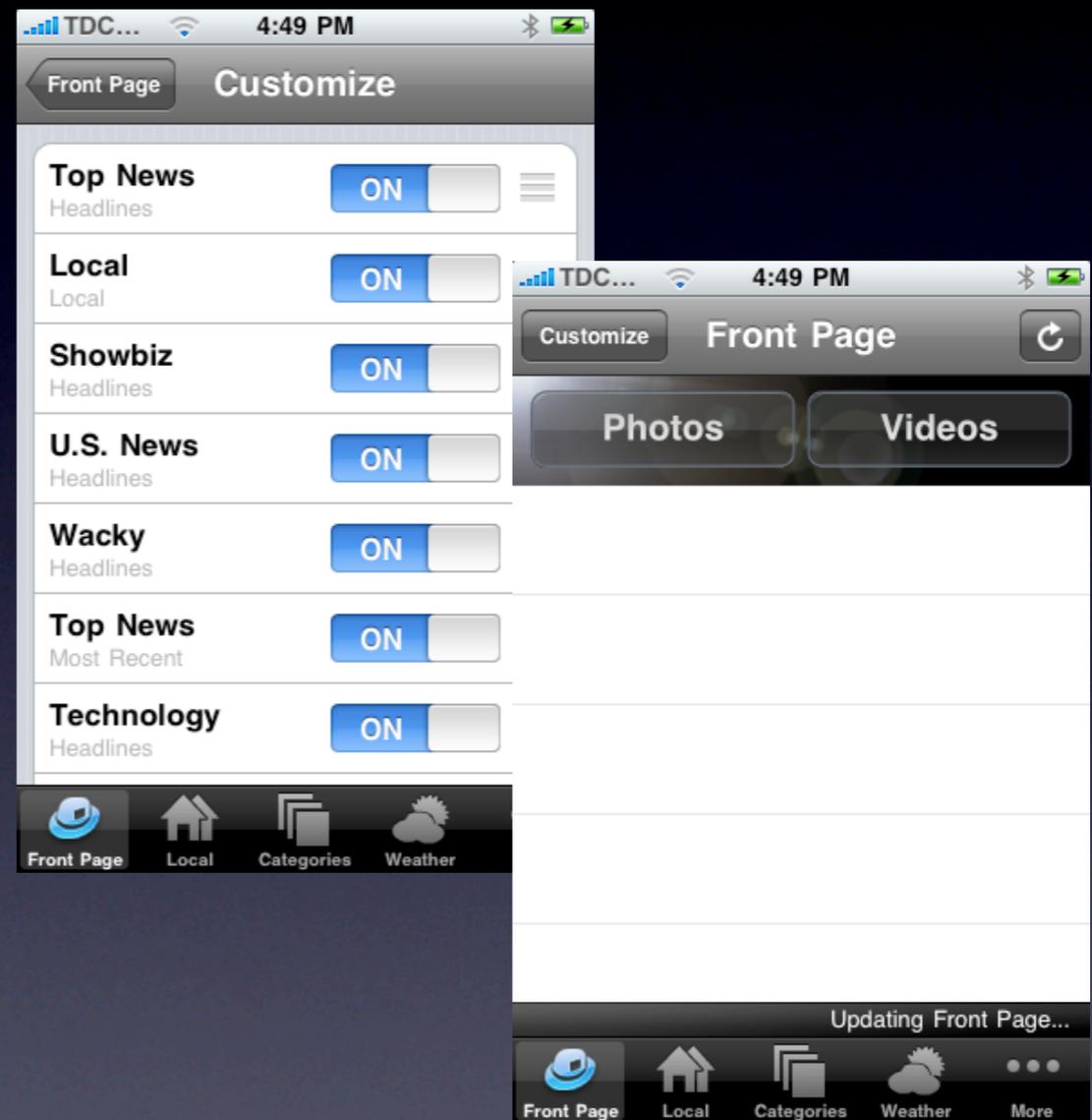
Alex Cone - Alpha Geek - CodeFab LLC

So What's The Problem?

- No Apple examples of full featured applications

- Books cover implementation of features, but not architecture

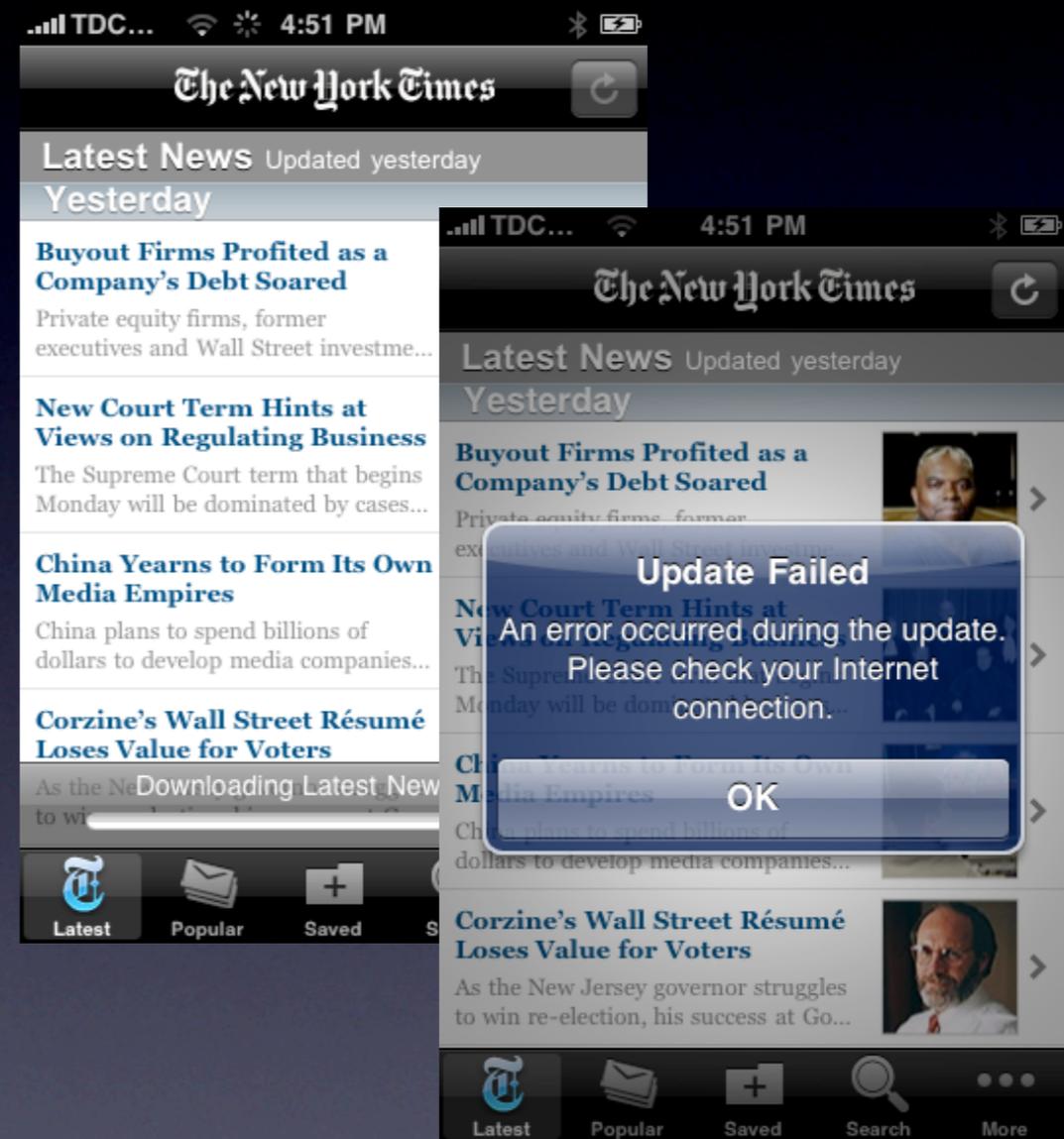- Developers tend to start with examples and evolve - leading to poor architecture

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Application Tasks

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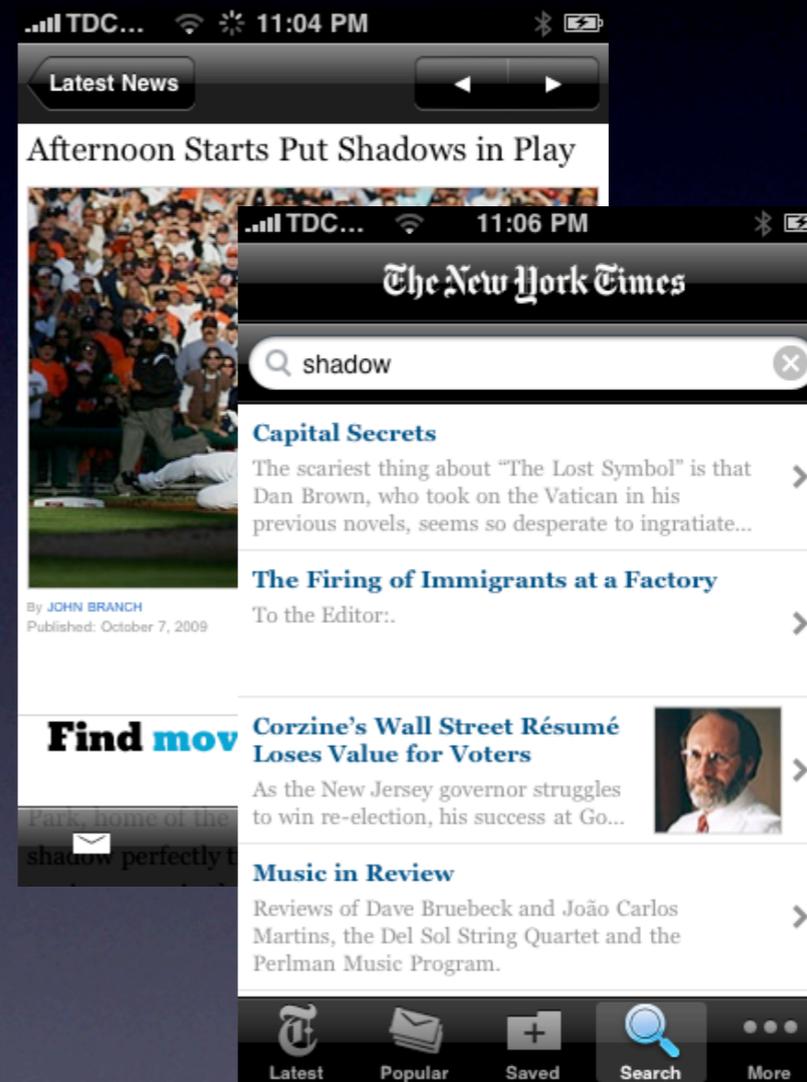 - Story Load, Caching

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...

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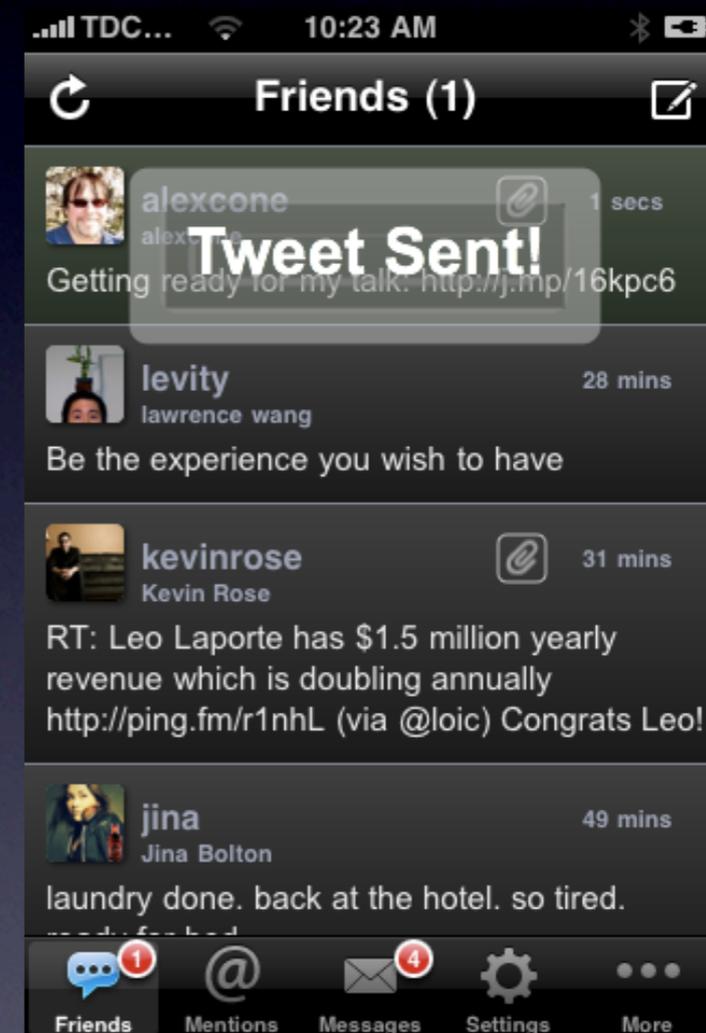**iPhone Development & Training**

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
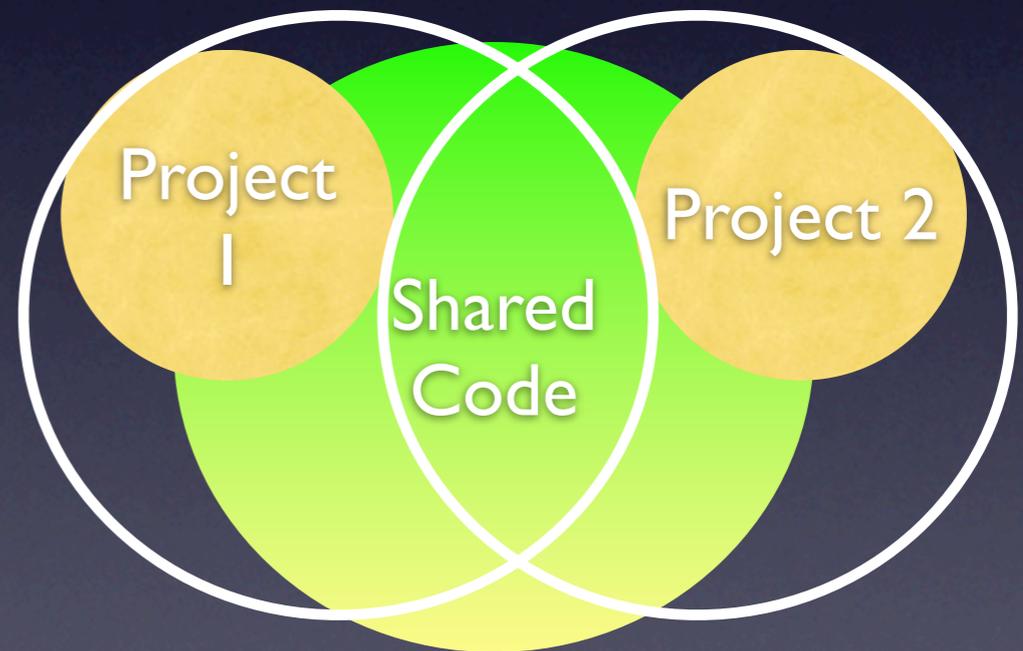
Process Challenge

- 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

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Advanced Process

- Code Reuse Strategies

  - Static Libraries

  - Overlapping Projects

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Q&A

Architecting Complex iPhone Applications

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