



Jenkins

Your personal butler for
continuous integration and
build automation in iOS

Hi, I'm Ben

@subdigital (Twitter)

@bens (adn)

benscheirman.com

I work for C chaione

Houston, TX

**iOS, Android, Rails,
Coffee, Beer**

I'm hiring!

I make screencasts

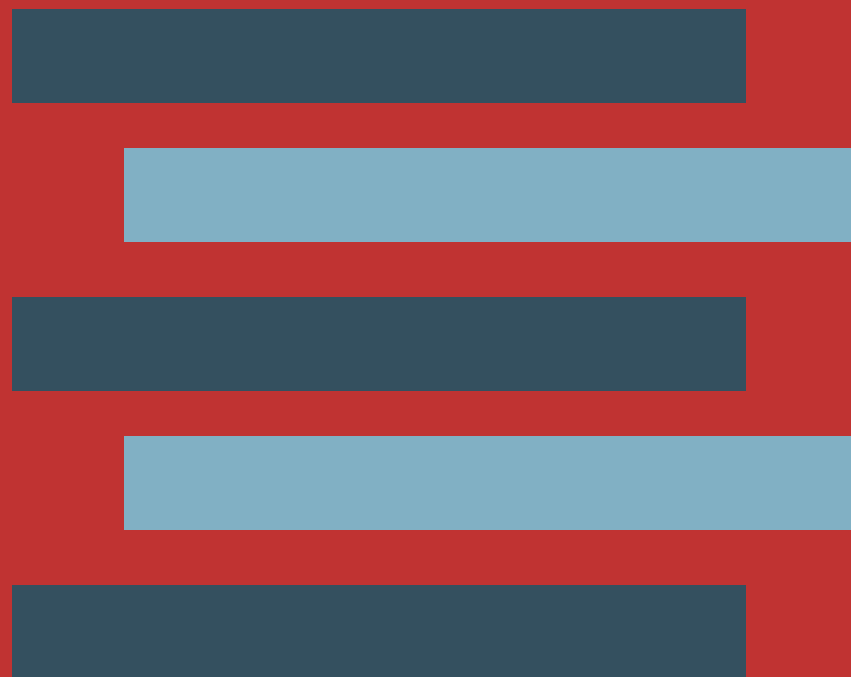
NS*Screen*cast

**Weekly screencasts on
iOS Development**

\$9/month

<http://nsscreencast.com>

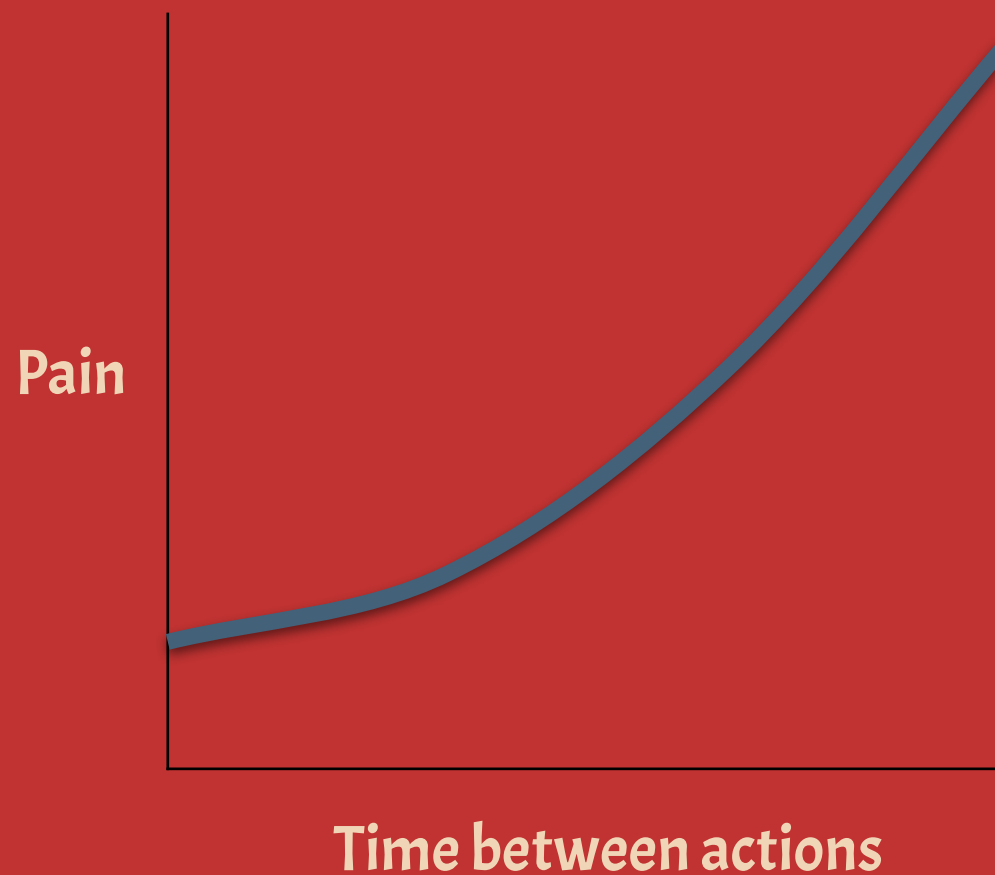
Continuous Integration



Integration Problems

- Machine-specific configuration
- Merge conflicts
- Contention on core files (project.pbxproj)
- Bad changes committed
- Updating certificates / profiles

Actions, Pain, & Frequency



<http://martinfowler.com/bliki/FrequencyReducesDifficulty.html>

**When something is
painful, do it more often**

“Many teams find that this approach leads to significantly reduced integration problems and allows a team to develop cohesive software more rapidly”

- Martin Fowler

Fowler's Tenets of CI

**Maintain a single
repository**

Automate the build

Build passes or fails

**Everyone commits to
master every day**

**Build runs on every
commit**

**Easy to retrieve
latest build**

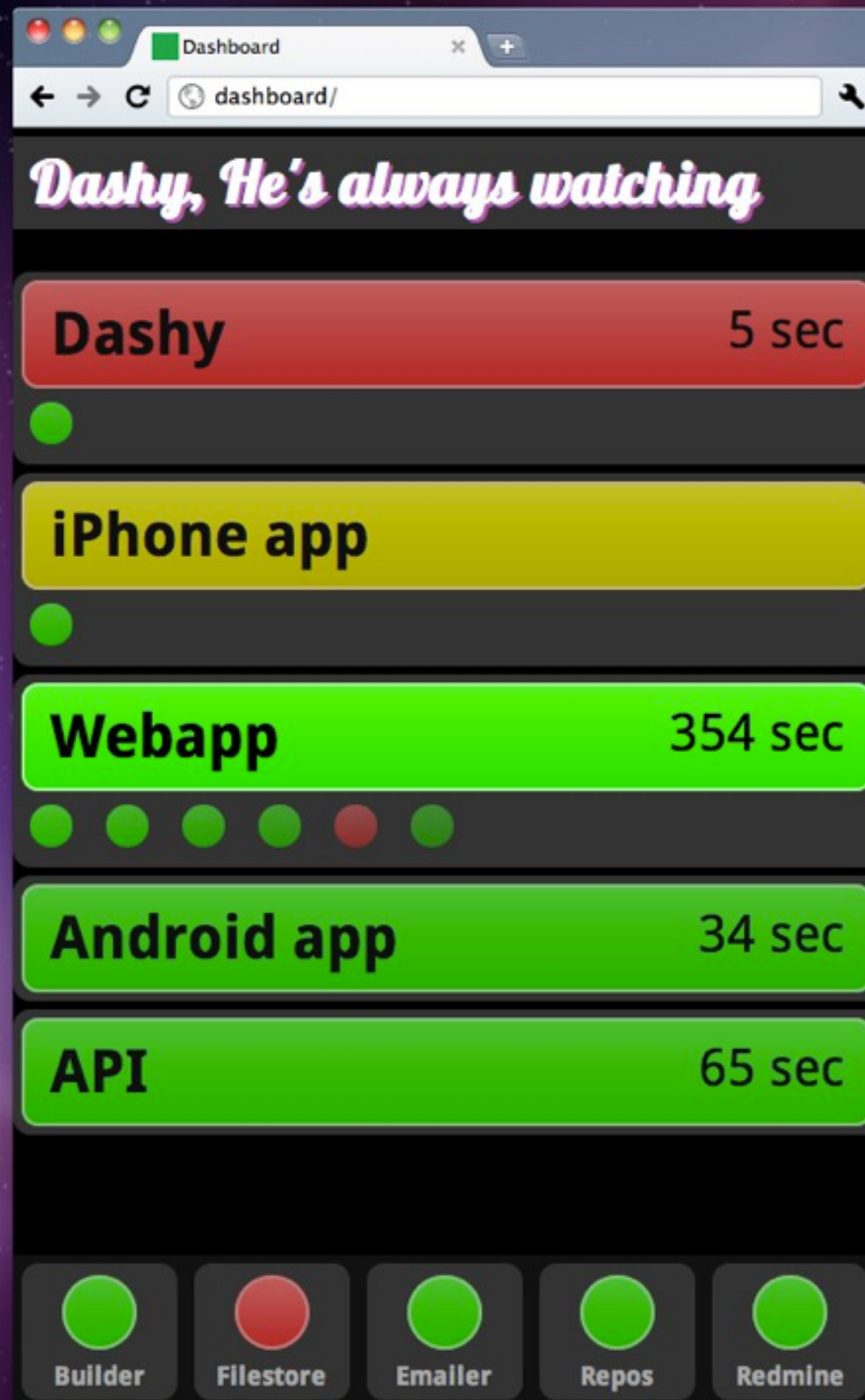
Automate Deployment

...more!

Ben's Tenet of CI:

**GIVE A CRAP
WHEN THE BUILD
IS BROKEN**

**Build a culture
concerned with quality**



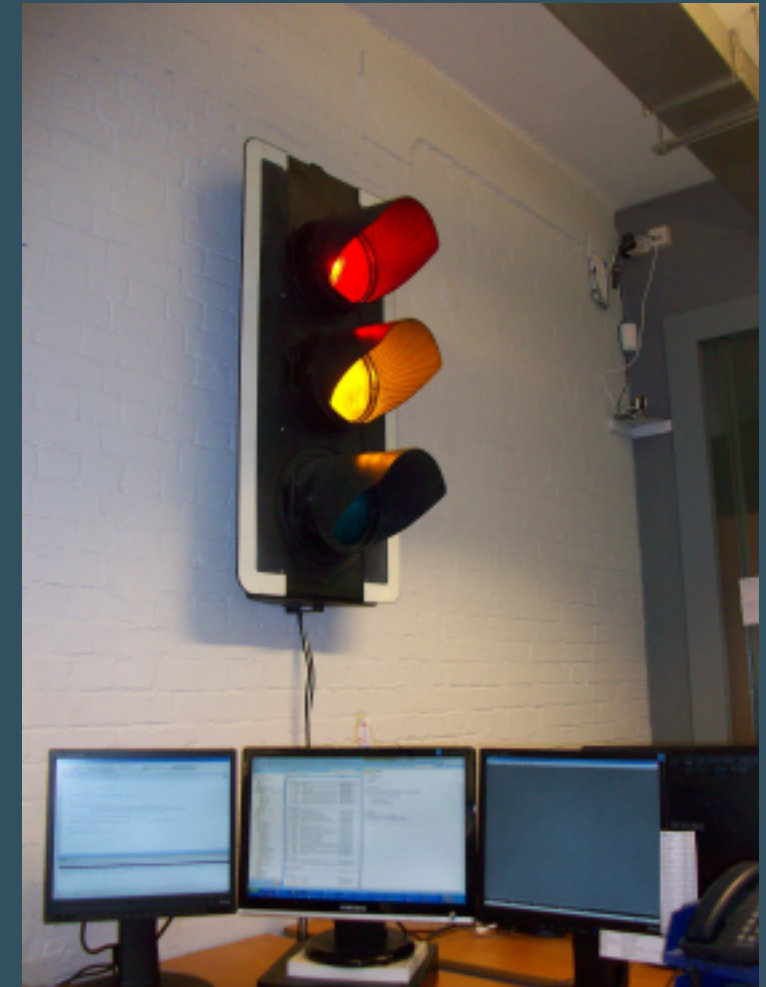
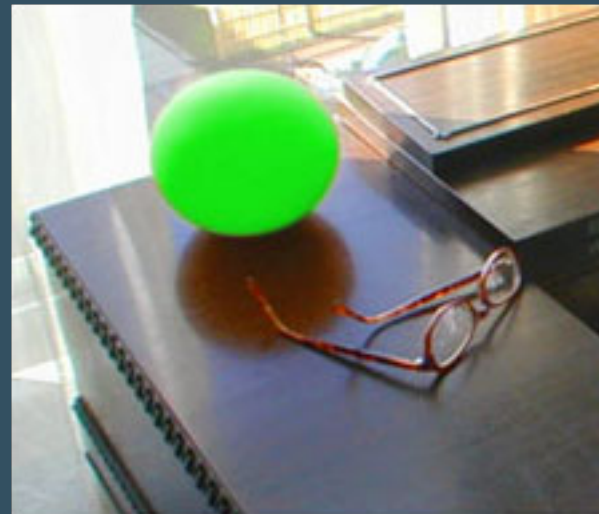
ppTools #572	DeleteOldPipelineData #783	Grouper-calibration #664	Grouper-demonstrator #1293	Grouper-event-detection-vhdl-test #65	Grouper-aeroflex #1057
Grouper-performance-events #117	Grouper-performance-test #485	Grouper-rpm-release #14	Grouper-rpm-tag #162	Grouper-rpm #580	Grouper-event-detection-vhdl-test #65
Grouper-update-test #139	GrouperDevserve #659	GrouperOnBlade-all_recipies #573	GrouperOnBlade-memleak_system_test #645	GrouperProd #858	Grouper-event-detection-vhdl-test #65
GrouperTrunk-multiplex_system_test #385	GrouperTrunk-raw_data_system_test #1045	GrouperTrunk-system_test #2300	GrouperTrunk-system_test_aeroflex #544	GrouperTrunk-weekend-test #38	Grouper-event-detection-vhdl-test #65
Grouper_ADLINK_all_sample_rates #341	PaddleFish-rpm #386	PaddleFish #395	SampleCPP #405	SystemBoard #708	barracuda-lite-trunk #331
barracuda-lite-trunk #331	barracuda-prerelease-71.0 #46	barracuda-trunk #1082	barramundi-prerelease-1.0 #702	blackfin-prerelease-5.0 #46	blackfin-prerelease-5.0 #46
conger-peakdetector-system-test #237	conger-pipeline-trunk-memleak #683	conger-pipeline-trunk #1650	conger-rpm-tag #56	conger-trunk #912	fast5-trunk #543
Grouper-api-prerelease-0.5 #331	Grouper-api-trunk #493	moray-pipeline-trunk #415	moray-prerelease-10.0 #1	mont-hdf5-prerelease-1.0 #26	stickleback-trunk #562
stickleback-trunk #562	swordfish-prerelease-3.0 #128	swordfish-stable #105			

Bubble, Bubble, Build's In Trouble



VS





CI Servers

- Jenkins
- Travis
- TeamCity
- CruiseControl (.NET)
- CI Joe



Installing Jenkins

```
$ brew install jenkins
```

Useful plugins

Git plugin

Xcode

Testflight

Sounds

HTML Publisher

More useful plugins

Github Plugin

IM Notifier

Status Monitor

Hipchat Notifier (or Campfire)

100's of others

***So we have a CI Server,
now what?***

**Have it run the build on
every commit**

What is “the build”?



A Definition of “the Build”

Compiles **Runs** **Unit Tests**

Runs Static

Packages IPAs

Analyzer

Generates Documentation

Uploads to

Archives dSYMs **Testflight**

Increments build
number

Publishes Code
Coverage Reports

**Inspects
for code
smells**

**Installs the latest
distribution
certificates & profiles**

1 command

**Set up your CI Machine
just like your Dev
Machines**

Our Mission:

Figure out how to do all that....

ON THE COMMAND LINE

Rake

Easy

Awesome

Better than Bash

scripting

Building the Xcode Project

```
xcodebuild -workspace Foo.xcworkspace \  
-scheme Foo \  
-sdk iphonesimulator \  
-configuration Debug \  
ONLY_ACTIVE_ARCH=NO  
clean build
```

Running Tests

```
xcodebuild -workspace Foo.xcworkspace \  
-scheme Foo \  
-sdk iphonesimulator \  
-configuration Debug \  
ONLY_ACTIVE_ARCH=NO  
TEST_AFTER_BUILD=YES \  
clean build
```

Red / Green Test Output

```
Run test suite SocialAppTests
Run test case testExample
```

```
Run test case testMath
```

```
/Users/ben/Dropbox/presentations/2013/cocoa-conf-chicago/jenkins/SocialApp/SocialAppTests/SocialAppTests
should be equal to '3': Math is broken
```

```
Executed 2 tests, with 1 failure (0 unexpected) in 0.000 (0.000) seconds
```

```
Executed 2 tests, with 1 failure (0 unexpected) in 0.000 (0.001) seconds
```

```
/Applications/Xcode.app/Contents/Developer/Tools/RunPlatformUnitTests.include:448: error: Failed tests f
```

```
/Applications/Xcode.app/Contents/Developer/Tools/RunPlatformUnitTests.include:462: note: Completed tests
```

```
=== BUILD NATIVE TARGET Pods OF PROJECT Pods WITH CONFIGURATION Debug ===
```

```
=== BUILD NATIVE TARGET SocialApp OF PROJECT SocialApp WITH CONFIGURATION Debug ===
```

```
** BUILD FAILED **
```

<https://gist.github.com/subdigital/3931414> * Works best with Kiwi

Xcodebuild-rb

```
XcodeBuild::Tasks::BuildTask.new do |t|
  t.sdk = "iphones"
  t.configuration = "Release"
  t.workspace = workspace
  t.scheme = scheme
  t.add_build_setting("ONLY_ACTIVE_ARCH", "NO")
  t.after_build do |build|
    derived_dir = build.environment['BUILT_PRODUCTS_DIR']
    `rm -rf #{output_dir} && mkdir -p #{output_dir}`
    `cp -R #{derived_dir}/* #{output_dir}`
  end
  t.formatter =
    XcodeBuild::Formatters::ProgressFormatter.new
end
```

Xcodebuild-rb

```
$ rake -T
```

```
rake xcode:archive          # Creates an archive build of
                             the specified target(s).
rake xcode:build            # Builds the specified
                             target(s).
rake xcode:clean            # Cleans the build using the
                             same build settings.
rake xcode:cleanbuild       # Builds the specified
                             target(s) from a clean slate.
rake xcode:install          # Builds and installs the
                             target
rake xcode:settings         # Prints the full Xcode build
                             settings
```

Why Xcodebuild-rb?

- **Integration with Rake**
- **Easily find BUILT_PRODUCTS_DIR**
- **Progress Formatter!**

Progress formatter

```
=> Running xcodebuild build
```

```
.  
Building target: SocialAppTests (in SocialApp.xcproject)  
=====
```

```
Configuration: Release  
.....
```

```
Building target: Pods (in Pods.xcproject)  
=====
```

```
Configuration: Release  
.....
```

```
Building target: SocialApp (in SocialApp.xcproject)  
=====
```

```
Configuration: Release  
.....
```

```
Finished in 2.571599 seconds.
```

```
Build succeeded.
```

Building an IPA

```
/usr/bin/xcrun -sdk iphones \
PackageApplication \
-v \
"build/Foo.app"
-o "build/Foo.ipa"
```

What about Code Signing?

Installing certificates

TIP: create a keychain for Jenkins

Installing certificates

```
security unlock -p jenkins jenkins
```

```
security import provisioning/ios_distribution.p12 \  
    -k ~/Library/Keychains/jenkins \  
    -P jenkins
```

Installing Provisioning Profiles

```
Dir["provisioning/*.mobileprovision"].each do |f|  
  `scripts/install_provisioning_profile.sh #{f}`  
end
```

<https://gist.github.com/subdigital/5049635>

**Renewed Certificate?
Updated ad-hoc profile?
just drop in provisioning/**

BOOM.



```
$ brew install appledoc
```

Generating Appledoc

```
appledoc \  
  --project-name Foo \  
  --project-company "Acme, Inc" \  
  --company-id com.acme \  
  --output docs \  
  --create-html \  
  --no-create-docset \  
  --ignore Pods \  
  --keep-intermediate-files .
```

▼ Table of Contents

Jump To...

Overview

Tasks

► Properties

TwitterFollowersViewController Class Reference

Inherits from	UITableViewController
----------------------	-----------------------

Declared in	TwitterFollowersViewController.h TwitterFollowersViewController.m
--------------------	--

Overview

`TwitterFollowersViewController` is a subclass of `UITableView` for showing the followers &

Usage

This view controller requires an `ACAccountStore` to be provided via the `accountStore` property.

This view controller does not handle the `ACAccountStoreDidChangeNotification` however it

notification.

Limitations

Warning: This controller assumes there is only one twitter account in settings. If multiple are p



TestFlight

Beta Testing On The Fly

Uploading to Testflight

```
/usr/bin/curl "http://testflightapp.com/api/builds.json" \  
-F file=@"build/Foo.ipa" \  
-F dsym=@"build/Foo.app.dSYM.zip" \  
-F api_token="..." \  
-F team_token="..." \  
-F notes=@"RELEASE_NOTES"
```



SocialApp

Settings



App Information



App Token



SDK Debugger



Builds



Builds

All of the beta builds for this app you have uploaded

Builds

Added Date

Built For



1.0 (20)

March 3, 2013

iPhone

ocunit2junit.rb

Plug it into Jenkins!

Links

- <http://www.martinfowler.com/articles/continuousIntegration.html>
- <http://martinfowler.com/bliki/FrequencyReducesDifficulty.html>
- <http://jenkins-ci.org>
- <https://gist.github.com/subdigital/3931414> (Test w/ colored output)
- <https://gist.github.com/subdigital/5049635> (Install provisioning profiles)

Thanks!

@subdigital
@nsscreencast
@bens (adn)

<http://github.com/subdigital/cocoa-conf-jenkins>
<http://speakerdeck.com/u/subdigital/jenkins>