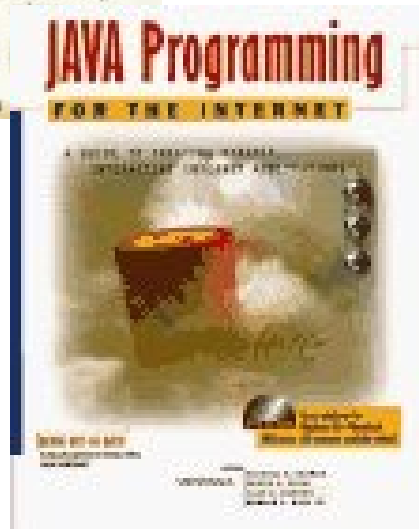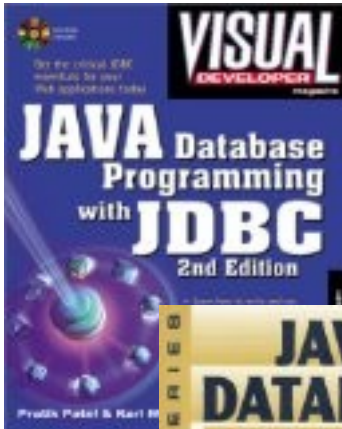# Hudson and Sonar - Automated Software Quality Control Tools
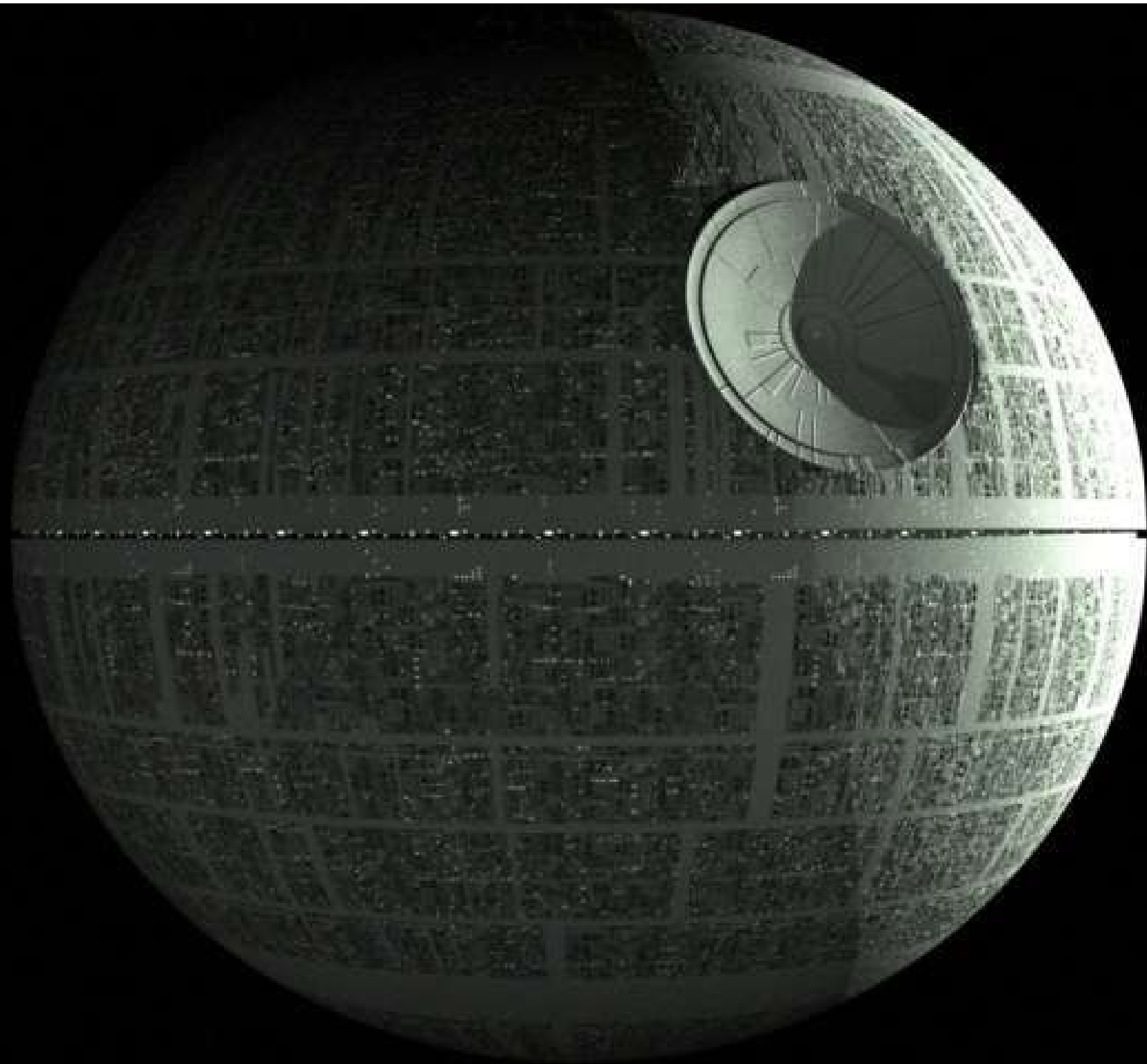
pratik@mypatelspace.com

About the presenter

- Corporate "architect" by day
- Code hacker by night
- Author & Speaker
- pratik@mypatelspace.com
- Code repo:
- http://github.com/prpatel

Software Quality Controls

1 Sounds like something a bean-counter would say

2 Necessary on any size code base

3 Larger the codebase, more needed

Shooting in the dark image

Need in haystack (where's waldo)

Topics

1	Hudson – Continuous Integration

2	Sonar – Code Quality Metrics

3	Demos – Best Practices - Gotchas

Hudson

1 Code Continuous Integration

2 Compile + Run Unit Tests

3 Plugins to do many other things

Continuous Integration

1 You check in code

2 Hudson detects changes

3 Builds "module" and all deps

CI Benefits

1 Code compilation problems detected early

2 Unit test failures detected early

3 Dependent module (module integration) failure found early

CI - Early detection of issues

1 Saved time

2 Saved troubleshooting

3 Saved stress & headache

CI – Long Term Benefits

| 1 | Enforces discipline |

| 2 | Builds developer confidence |

| 3 | Trending of bad code or bad developers |

Hudson Plugins

SCM:

SVN

GIT

HG

PVCS

SourceSafe

Perforce

Clearcase

etc

Build tools:

Mvn

Ant

Gant

Gradle

Rake

Grails

Sites:

Github

Trac

JIRA

Comms:

Twitter

IRC

Email

IM

Uploaders:

FTP

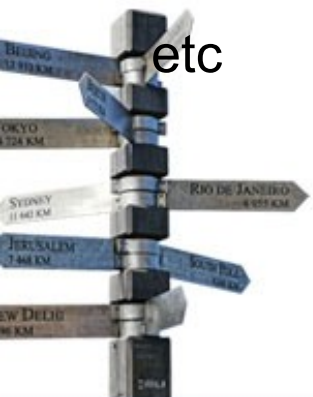SCP

JEE deploy

Report:

Clover

Cobertura

Checkstyle

PMD

Findbugs

Emma

Xunit

Demo 1: Hudson

Large builds, no problem

1 Hudson Master and Slaves

2 Hudson manages farming out of work to slaves

3 Hudson Swarm – autodiscover of master from slaves

Dependent modules

1 When using mvn, Hudson knows the dependencies

2 Upstream modules

3 Downstream modules

Other goodies

1 Auto-publish to mvn repo

2 Site generation

3 Easy access to built artifacts

Helps identify build anti-patterns

1 Unstable compiles/tests

2 Taking too long to build

3 Brittle API/dependencies

Intro to Sonar

Sonar

1 Complements Hudson

2 Collects metrics for projects – front-end is web

3 Code coverage, coding standard violations, complexity, etc

Sonar benefits

1   Collects quality metrics over time

2   Allows quick and easy drill downs to problem areas

3   Ability to add own plugins or configure "rules"

Demo 2: Sonar

What's so RAD?

1 Changes to views didn't require restart

2 GORM let you put together domain model fast

3 Using RichUI plugin we were able to add some bling quickly

Under the hood

1 Comes with in-memory HSQLDB pre-configured for development

2 Jetty/Tomcat integrated

3 Uses Spring so can use any Spring class

More GORM

1	Dynamic Finder methods
2	Query by Example
3	HQL – Hibernate Query Lang

GORM Queries

Report.find("select r from Report r where r.title like ?",

["%my report%"])

    Report.find(new Report(title:"my report"))

```
def c = Report.createCriteria()
def results = c {
like ("title", "%my report%")
maxResults(10)
}.list()
```

Grails Controllers

1 URL Mapping by Convention

2 Define actions as closures

3 No need to restart on most changes

Grails URL Mapping

http://localhost:8080/ajugdemo/report/show/1

http://server/appname/controller/action/parameters

Services made easy

1 Groovy or Java class

2 grails-app/services

3 Auto-injection into controllers & other services with declaration

Service injection example

Controller:

```
class ReportController {

def list = {

…

MyService myService

..
```

Service:

```
class MyService

def processMessage = {

println "GOT MESSAGE:\n $it"

def item = new XmlSlurper().parseText(it)

...
```

Views - GSP

1 Like JSP's but groovier

2 Accessed by convention or explicit name

3 Good taglib's

Service injection example

```
<tr class="prop">

   <td valign="top" class="name">

      <label for="code"><g:message
code="report.code.label" default="Code" /></label>

      </td>

   <td valign="top" class="value ${hasErrors
(bean: reportInstance, field: 'code', 'errors')}">

      <g:textField name="code" value="$
{reportInstance?.code}" title="entry code"/>

      <richui:tooltip id="code" />

   </td>

</tr>
```

More view goodies

1 GrailsUI - RichUI

2 JQuery, YUI, ExtJS, Dojo, Proto

3 Flex, ZK, Swing

Plugin madness – my favourites

1 JMS

2 Functional Test

3 Nimble

There's a plugin for that!

acegi, activemq, amazon-s3, amazonfps, aop, app-engine, appengine-gorm, applet, atmosphere, audit-logging, audit-trail, authentication, auto-delegator, autobase, autorest, avatar, axis2, background-thread, barcode4j, bean-fields, birt-report, blueprint-css, blurb, bubbling, build-test-data, burning-image, c2d, cache, calendar, camel, cas-client, circuit-breaker, ckeditor, clamav, class-diagram, clickstream, clojure, cloud-foundry, cms, code-coverage, code-editor, codenarc, cometd, commentable, compress, confluence, console, constraints, contact-me, contentmanager, converters, cookie, create-domain-uml, criteria, crowd, crypto, cxf, datasources, db-stuff, db-util, dbmapper, dbmigrate, dbmonster-plugin, dbunit-operator, debug, directext, dist-ehcache, djangotemplates, dojo, domain-schema, drilldowns, drools, drools-gorm, dto, dwr, dynamic-jasper, eastwood-chart, easyb, easybtest, echo2, email-confirmation, exchange-rates, export, ext, ext-ui, extended-data-binding, extended-gorm-mappings, facebook-connect, falcone-util, fckeditor, feeds, filter, filterpane, fixtures, flash-player, flex, flex-scaffold, flot, form-helper, freemarker, fsm, func, functional-test, gdsflex, geoip, google-analytics, google-chart, google-data, gorm-couchdb, gorm-hbase, gorm-jpa, gorm-labs, gparallelizer, gpars, grails-template-engine, grails-ui, greenmail, gridgain, growler, gss, gwt, h2, help-balloons, hibernate-filter, hibernate-jpa-provider, hibernate-search, hibernate-stats, i18n-gettext, i18n-templates, ibatis, ibm-i, ic-alendar, image-proxy, include, iui, ivy, iwebkit, j2d, jabber, jackrabbit, jasper, javascript-validator, jawr, jaxrs, jbosscache, jbpm, jcaptcha, jcr, jdbc-pool, jetty, jit, jms, jmx, joda-time, jpa, jqtouch, jquery, jquery-calendar, jquery-ui, jsecurity, jsf, jsunit, jsword, jtopen, jttaglib, ki, laszlo, ldap, ldap-server, license, liferay-exploded, liquibase, localizations, log4j-xml, logdigger-connector, logging, lookups, mail, mapstraction, markdown, menus, message-digest, modalbox, mondrian, monster, mootools, morph-deploy, multi-tenant, multi-tenant-acegi, navigation, neo4j, nimble, ntlm-auth, oauth, ofchart, ohloh, openid, opensso, osworkflow, p6spy, paypal, paypal-pro, pdf, perf4j, php, pluto, portlets, portlets-liferay, portlets-pluto, post-code, pretty-date, pretty-size, pretty-time, profiler, promo, quartz, radeox, rateable, rdfa, recaptcha, ref-code, reloadable-config, remote-constraints, remote-pagination, remoting, resources-first, rest, restore-state, richui, runtime-logging, sakai, scaffold-tags, scala, screen-wiz, screencasts, searchable, searchable14, selenium, selenium-rc, session-temp-files, settings, shiro, shopping-cart, simple-blog, skinnable, smartclient, sound-manager, sparkline, spock, springcache, springmvc, springws, stark-security, static-resources, step2, stitches, struts1, sublog, sumatra, super-file-upload, symmetricds, syntax-highlighter, taggable, taxonomy, terracotta, test-template, testing, testing-labs, tinyurl, tooltip, triggers, twitter, uber-scaffolding, ui-performance, urlrewrite, vaadin, wave, webdav, webdriver, webtest, webtest-coverage, webthumbs, webxml, weceem, weceem-acegi, wicket, wordpress, ws-client, xfire, xmlrpc, xmpp, xtemplates, xwiki-rendering, yui, yui3, zk

Grails as a platform

1	Not just web apps

2	Since it's Java, JEE integration is easy

3	Runs in any JEE container

Integration w/ Java tools and libs

Integrated & Sophisticated Scripting

Groovy Application Console

JMX Using Groovy

Bring GORM to Legacy DB's with JPA Integration

Gradle Build System

JMS Messaging

Web Services

Scripted Workflow and Rules

DSL's

Running Scheduled Jobs

Generating Report data

Email Integration – incoming and outgoing

Demo 2: Functional Test

Integration Testing

1 Quickly glue together components for integration testing

2 Web, JMS, Files

3 XML Parsing, Web Services, REST

Demo 5: Integration Testing

Q&A

- groovy.codehaus.org

- grails.org

- Books

  - Programming Groovy

    - Definitive Guide to Grails

    - Getting Started with Grails (free)

- pratik@twotigers.info