

# Groovy & Grails 2.x update

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# Agenda

- What's new in Groovy 2?
- What's new in Grails 2.2?
- Grails Advanced Enterprise Integrations through examples



# Groovy

- Groovy is a **dynamic language** on and for the JVM
  - Fully interoperable with Java *at all levels*
- Goal is to **greatly simplify the life for developers**
- Release 2.0.6, December 2012 (started in 2004)



# Grails

- Full Stack, **Full Productivity** MVC Framework
- Built on a **solid, well-known foundation**
  - Spring, Hibernate, Sitemesh
- Conventions and defaults everywhere
- Release 2.2.0, December 2012 (started mid 2005)



**vmware®**

# Protect investment in the JavaEE platform

- Existing applications
- Existing APIs
- Existing 3rd party components
- Existing competence



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# Groovy & Grails 1.x, 2011: What was the problem?



# Groovy 1.x, 2011: What was the problem?

- Dynamic languages are scary!
- Dynamic languages are slow!



# Grails 1.x, 2011: What was the problem?

- Immature Development environment
  - Bad IDE support
  - Bad build system support
  - Primitive dependency management



# Grails 1.x, 2011: What was the problem?

- Not well suited for test-driven development
  - Old-school unit test framework
  - Long round-trip startup time



# Grails 1.x, 2011: What was the problem?

- Immature plugins



... but things change ...





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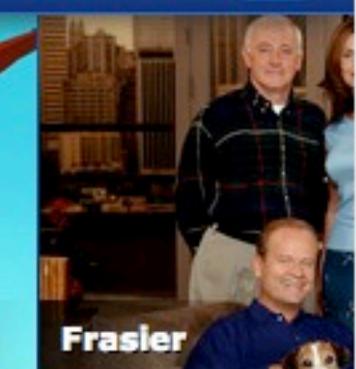
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Ashley Banjo's Secret Stre...

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Carpet



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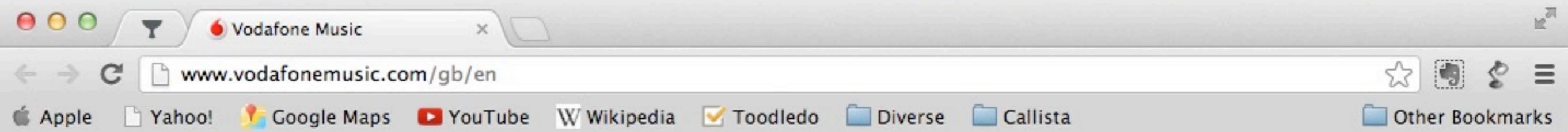
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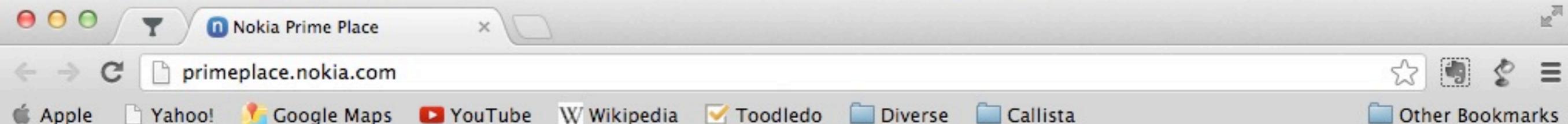


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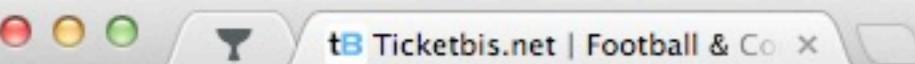
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Arsenal v Manchester City 2013 Tickets

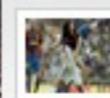
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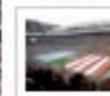
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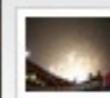
England vs Brazil 2013 Tickets



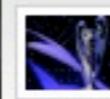
Real Madrid v Barcelona Tickets



Arsenal v Manchester City 2013 Tickets



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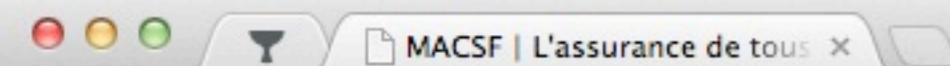
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## Le panorama du risque médical

La MACSF publie son **rapport d'activité 2011** qui compile toutes les déclarations de sinistres **Responsabilité Civile Professionnelle** et les décisions de justice

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# EN GOD START



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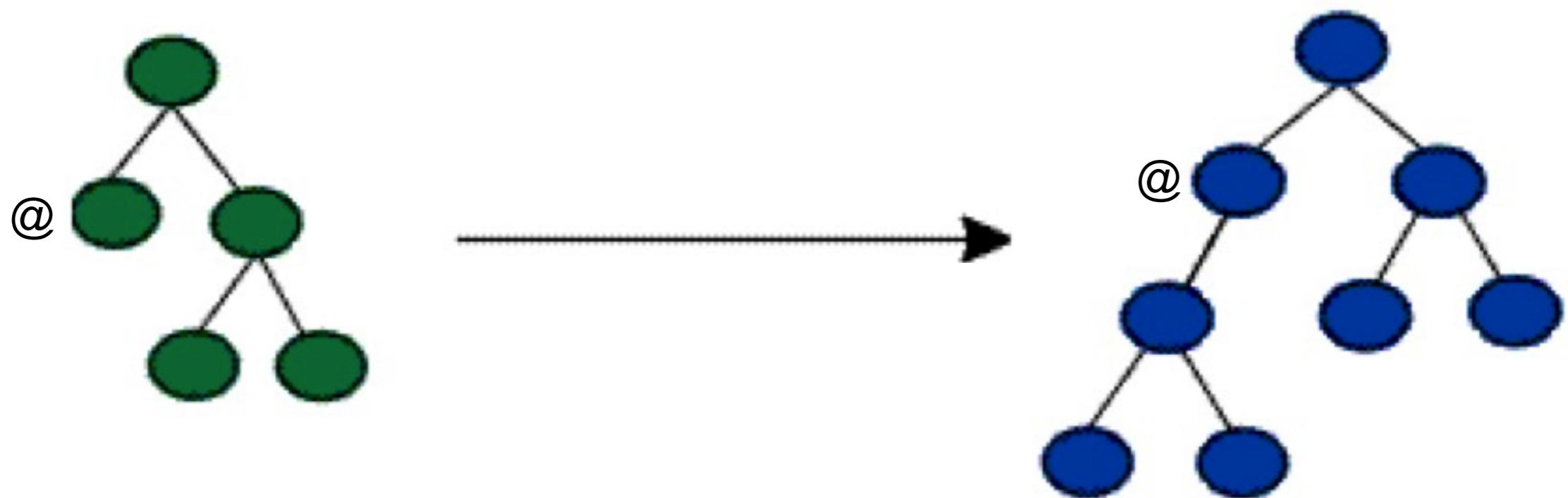


# Groovy, anno 2013

2013

# Groovy AST transformations

Also known as *compile-time metaprogramming*



# AST transformations: @Singleton

```
@Singleton(lazy = true)
```

```
class MyClass { }
```

```
MyClass.instance.someMethod()
```

# AST transformations: `@Lazy`

```
class Person {  
    @Lazy  
    List dnaProfile = { /* complex  
        computation */ }  
}
```

# AST transformations: @Immutable

## @Immutable

```
final class Coordinates {  
    Double latitude, longitude  
}
```

# AST transformations: @Delegate

```
class Event {  
    @Delegate Date when  
  
    ...  
}  
  
def cadec = new Event(...)  
def javaOne = new Event(...)  
assert cadec.before(javaOne.when)
```

# AST transformations: @Log

## @Log

```
class Employee {  
    Employee() {  
        log.info("Employee created")  
    }  
}
```

# AST transformations: @AutoClone

## @AutoClone

```
class Employee {  
    String firstName  
    String lastName  
    Assignment assignment  
}
```

# AST transformations: @ToString

## @ToString

```
class Employee {  
    String firstName  
    String lastName  
}
```

```
def e = new Employee(firstName:"Björn",lastName:"Beskow")  
assert e.toString == "Employee(Björn, Beskow)"
```

# AST transformations: **@EqualsAndHashCode**

## **@EqualsAndHashCode**

```
class Employee {  
    String firstName  
    String lastName  
    Assignment assignment  
}
```

# AST transformations: @InheritConstructors

## @InheritConstructors

```
class EmployeeException extends Exception {  
    EmployeeException(Assignment a) { .. }  
}
```

# AST transformations: @Category

## @Category (Number)

```
class NumberCategory {  
    Distance getMeters() {  
        new Distance(number: this)  
    }  
}
```

```
use(NumberCategory) {  
    def dist = 300.meters  
}
```

# AST transformations: `@TypeChecked`

- Best of two worlds:
  - Brings *Static Typing* into the dynamic world of Groovy
- Compiler performs sophisticated *type inference*



Eclipse File Edit Source Refactor Navigate Search Project Run Window Help (Charged) 20:53

Grails - employee/grails-app/services/cadec/ExportService.groovy - Eclipse SDK - /share/svn/Enterprise/Internt/Cadec/Cadec2013/Present...

Create Employee http://localhost:808 EmployeeService.groovy Employee.groovy ExportService.groovy 6

```
package cadec

import groovy.xml.StreamingMarkupBuilder
class ExportService {

    def employeeService

    def exportEmployees() {
        new FileWriter("/tmp/employees.xml") << new StreamingMarkupBuilder().bind {
            employees {
                employeeService.getEmployees().each {emp ->
                    employee(FirstName:emp.firstName,
                            LastName:emp.lastName,
                            EMail:emp.email)
                }
            }
            println "Employees exported"
        }
    }

    static exposes = ["jms"]
    static destination = "aQueue"
    def onMessage(message) {
        if (message == "export") {
            exportEmployees()
        } else {
            println "Unknown message '${message}' received"
        }
    }
}
```

# AST transformations: `@CompileStatic`

- One step further:
  - Statically compile* a class or block of code, which makes the bytecode (almost) identical to corresponding compiled Java code, with *identical performance*
  - Can prevent dynamic behavior to be inadvertently applied to a block of code (a.k.a. “Monkey Patching”)

# Grails, anno 2013

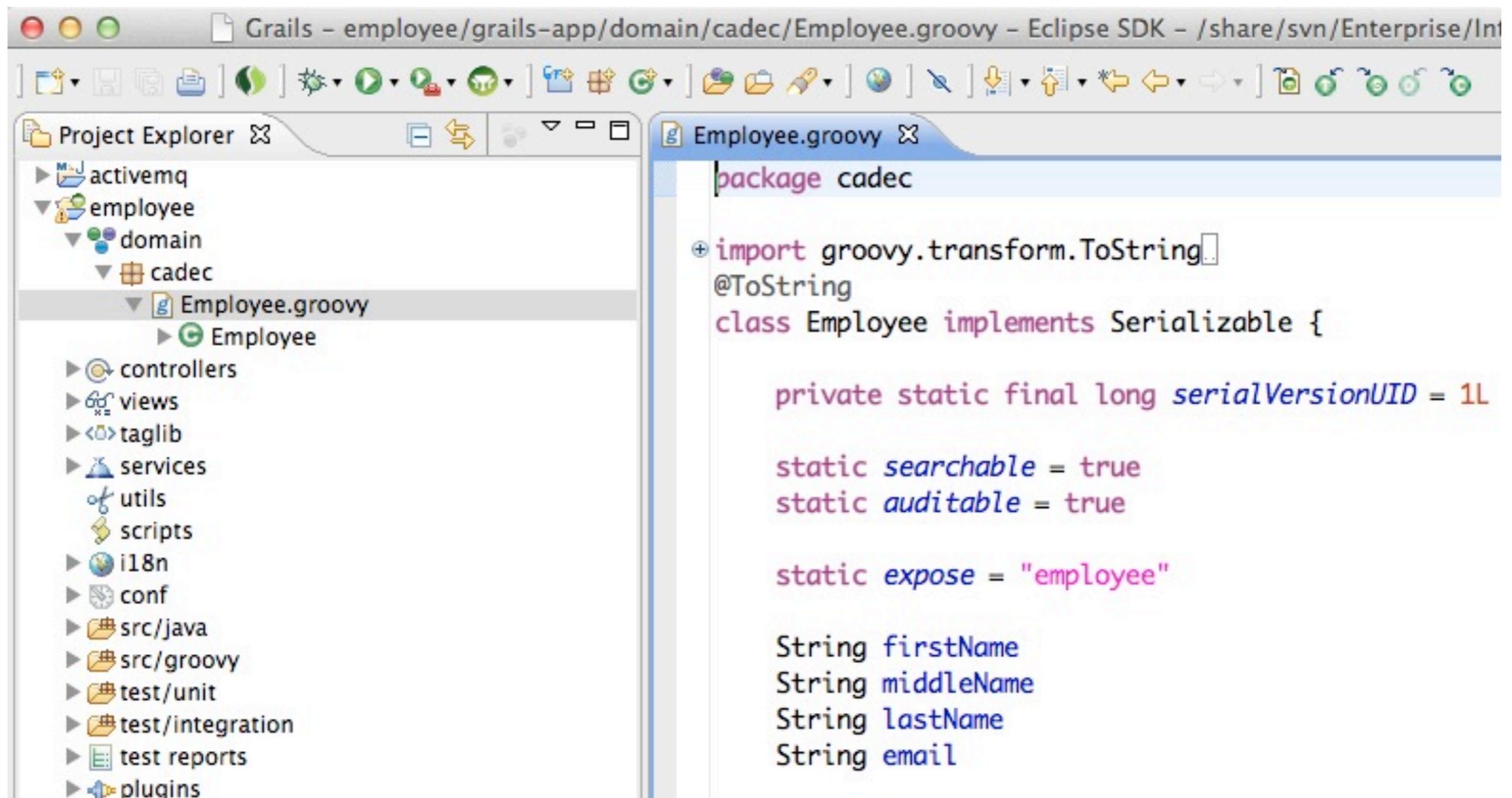
2013

# Grails, anno 2013

- IDE support that finally works
- Many high quality enterprise-grade plugins available
- Grails 2.2
  - Agent-based class reloading and interactive console
  - Native Maven support
  - NoSQL database support
  - DB Migrations
  - Cloud Deployments



# IDE support



The screenshot shows the Eclipse IDE interface with a Grails project open. The Project Explorer view on the left displays the project structure:

- activemq
- employee (selected)
- domain (selected)
- cadec (selected)
- Employee.groovy (selected)
- Employee
- controllers
- views
- taglib
- services
- utils
- scripts
- i18n
- conf
- src/java
- src/groovy
- test/unit
- test/integration
- test reports
- plugins

The Employee.groovy file is selected in the editor view on the right, showing the following Groovy code:

```
package cadec

import groovy.transform.ToString
@ToString
class Employee implements Serializable {

    private static final long serialVersionUID = 1L

    static searchable = true
    static auditable = true

    static expose = "employee"

    String firstName
    String middleName
    String lastName
    String email
}
```



# Maven integration & dependency mgmt.

```
grails.project.dependency.resolution = {  
    // Retrieve dependencies from maven pom.xml  
    pom true  
    // inherit Grails' default dependencies  
    inherits("global") {  
        // specify dependency exclusions here;  
        // excludes 'ehcache'  
    }  
}
```

# TDD support

```
plugins {  
    test ":build-test-data:2.0.3"  
    test ":fixtures:1.2"  
  
    test ":geb:0.9.0-RC-1"  
    test ":spock:0.7"  
  
    test ":auto-test:1.0.1"  
}
```

Eclipse File Edit Source Refactor Navigate Search Project Run Window Help (Charged) 23:42

Grails - employee/test/unit/cadec/EmployeeTests.groovy - Eclipse SDK - /share/svn/Enterprise/Internt/Cadec/Cadec2013/Presentations/G...

Project Explorer Employee.groovy BootStrap.groovy BuildConfig.groovy EmployeeTests.groovy

employee domain cadec controllers cadec EmployeeController.groovy EmployeeController views layouts error.gsp index.gsp taglib services utils scripts i18n conf hibernate spring resources.groovy ApplicationResources.groovy BootStrap.groovy BuildConfig.groovy BuildConfig Config.groovy Config DataSource.groovy UrlMappings.groovy

No servers available. Define a new server from the [new server wizard...](#)

Employee.groovy

```
package cadec

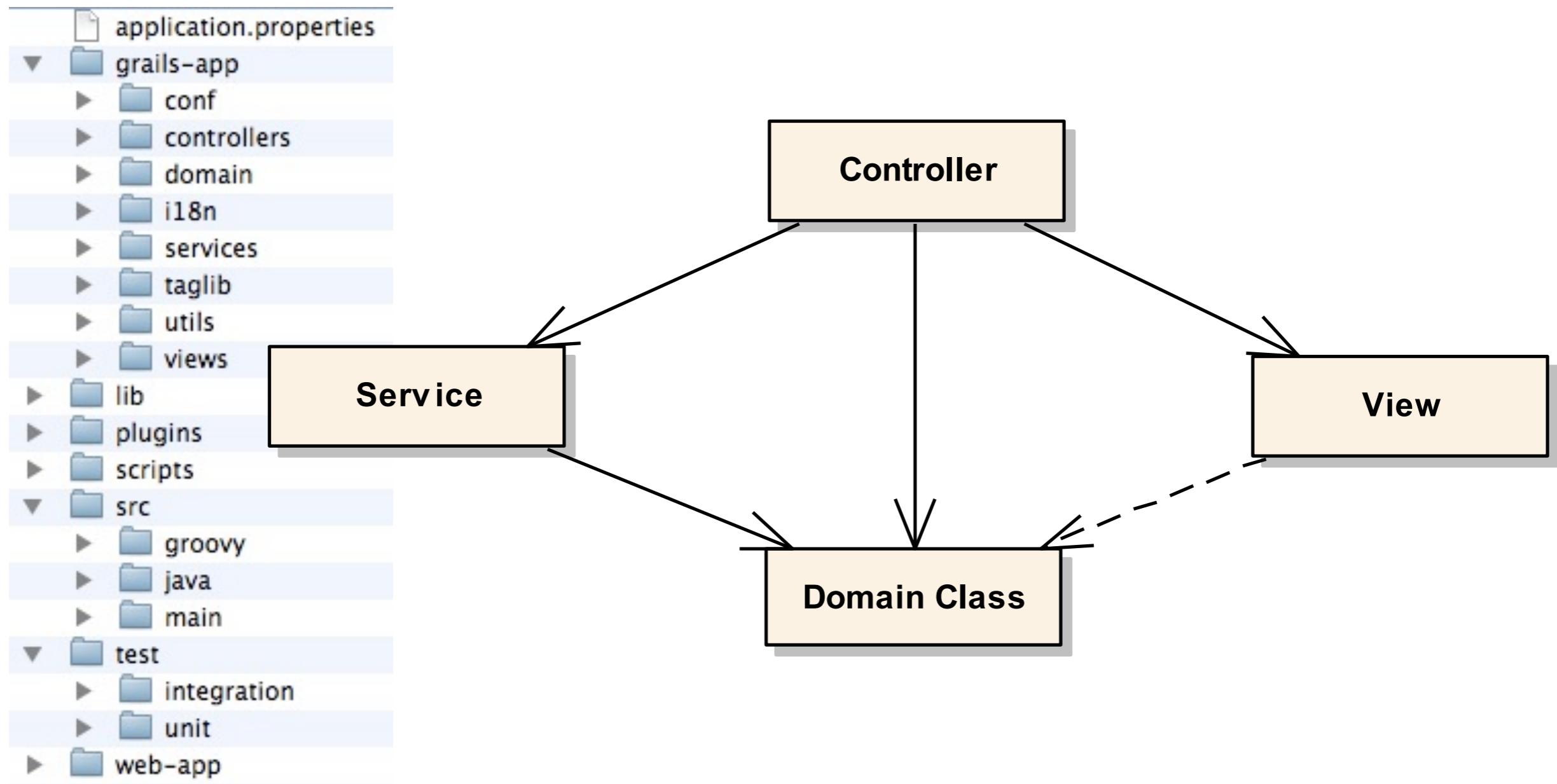
import grails.buildtestdata.mixin.Build
@TestFor(Employee)
@Build(Employee)
class EmployeeTests {
    @Before
    public void setUp() {
        mockForConstraintsTests(Employee)
    }
    @Test
    void constraintsValidation() {
        Employee invalidEmail = Employee.buildWithoutSave(email:"invalid")
        assert !invalidEmail.validate()
        assert "email" == invalidEmail.errors["email"]
    }
    @Test
    void constraintsPass() {
        Employee valid = Employee.buildWithoutSave(email:"test@test.com")
        assert valid.validate()
    }
}
```

Console Markers Progress

<terminated> EmployeeTests [JUnit] /Library/Java/JavaVirtualMachines/jdk1.7.0\_10.jdk/Contents/Home/bin/java (Dec 17, 2012 11:42:42)

Writable Smart Insert 20 : 10

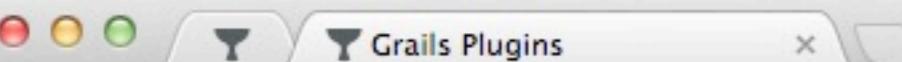
# Grails: The Power of Convention



# Grails Plugins

- Grails Plugins turn Grails into an *extensible platform*
  - Exposes well-defined extension points
  - Low ceremony format makes writing plugins trivial
  - Active community, with well over 800 plugins available





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## Plugins

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## Neo4j GORM

6 votes

Tags : [persistence](#), [gorm](#), [neo4j](#) | Latest : 1.0.0.M5 | Last Updated: 08 November 2012 | Grails version : 1.2 > \*



A plugin that integrates the Neo4j graph database into Grails, providing a GORM API onto it [Read more](#)

### Dependency :

```
compile ":neo4j:1.0.0.M5"
```

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# Plugins in action!

- DB migrations with Liquibase
- Cloud deployment to Cloud Foundry
- MongoDB integration
- Db-backed message translations
- Ajax-based Compass/Lucene search
- LDAP-based authorization
- Audit logging
- Application monitoring
- Quartz integration
- Mail integration
- JMS integration
- Spring Remoting with rich clients
- RESTful web services
- SOAP web services



# Quiz: How many lines of code?

- 30 lines?
- 75 lines?
- 150 lines?
- 750 lines?



# Database migrations

```
plugins {  
    runtime ":database-migration:1.2.2"  
}
```



Eclipse File Edit Source Refactor Navigate Search Project Run Window Help (Charged) 09:48

Grails - employee/grails-app/domain/cadec/Employee.groovy - Eclipse SDK - /share/svn/Enterprise/Internt/Cadec/Cadec2013/Presentation...

Project Explorer

employee

- domain
- controllers
- views
- taglib
- services
- utils
- scripts
- i18n
- conf
- hibernate
- spring
- ApplicationResources.groovy
- BootStrap.groovy
- BuildConfig.groovy
  - BuildConfig
- Config.groovy
- DataSource.groovy
- UrlMappings.groovy

src/java

src/groovy

test/unit

test/integration

test reports

plugins

classpath

application.properties

fixtures

Servers

VMware Cloud Foundry [Stopped]

Employee.groovy

DataSource.groovy

Config.groovy

```
package cadec

class Employee {

    String firstName
    String lastName
    String email

    static constraints = {
        lastName()
        firstName(blank:false)
        email(email:true, unique:true)
    }
}
```

Console

Markers

Progress

JUnit

No consoles to display at this time.

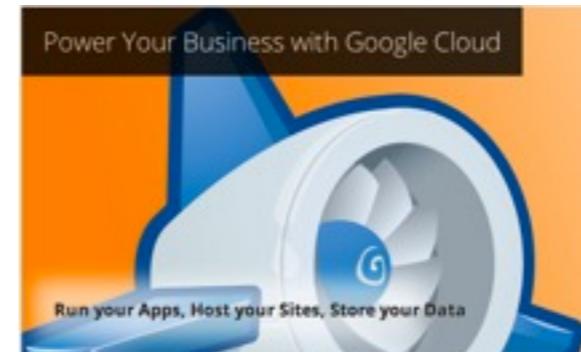
Writable

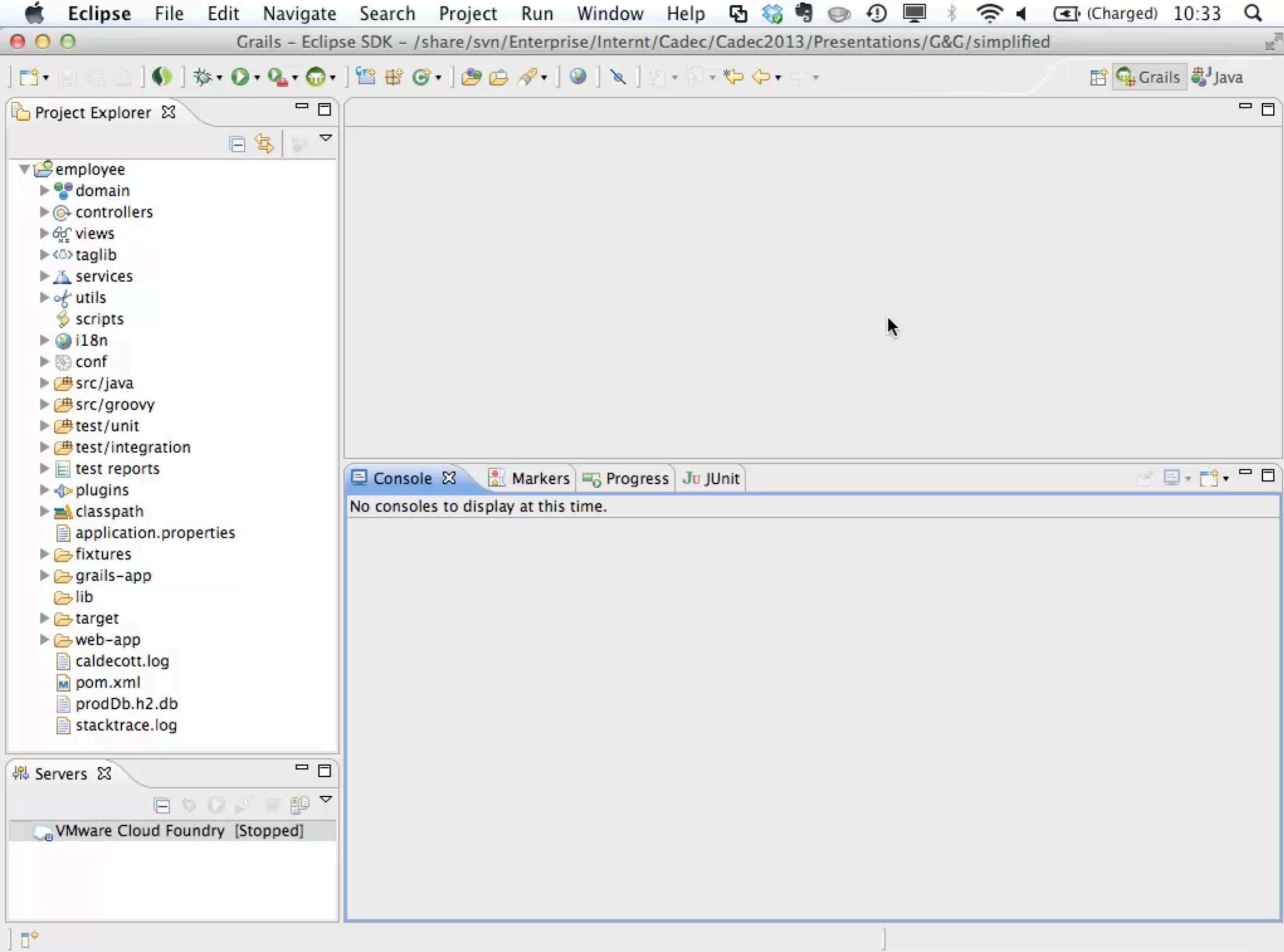
Smart Insert

8 : 1

# One-click Cloud Deployment

```
plugins {  
    compile ":cloud-foundry:1.2.3"  
}
```





# NoSQL Database support

```
plugins {  
    compile ":mongodb:1.1.0.GA"  
}
```



**mongoDB**

{name: "mongo", type:"DB"}



**redis**



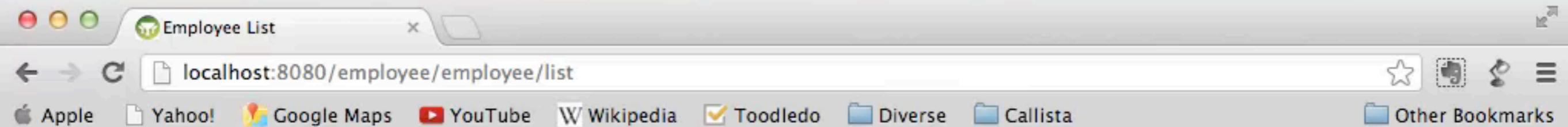
**Cassandra**



apache  
**CouchDB**  
relax

# NoSQL Database support

```
class Employee implements Serializable {  
    static mapWith = "mongo"  
  
    String firstName  
    String middleName  
    String lastName  
    String email
```



Home Employee Search Logout

EMPLOYEE

[Employee List](#)

[Create Employee](#)

# Employee List

Last Name	Middle Name	First Name	Email	
Larsson	middleName	Magnus	ml@callistaenterprise.se	Show »
Eltes	middleName	Johan	je@callistaenterprise.se	Show »
Carlén	middleName	Johannes	jc@callistaenterprise.se	Show »
Västernäs	middleName	Jan	jv@callistaenterprise.se	Show »

# I18n

```
plugins {  
    runtime ":localizations:1.4.4.6"  
}
```

# I18n

```
default.doesnt.match.message=Attributet [{0}] för klassen [{1}] med värde [{2}] matchar  
default.invalid.url.message=Attributet [{0}] för klassen [{1}] med värde [{2}] är inte  
default.invalid.creditCard.message=Attributet [{0}] för klassen [{1}] med värde [{2}] ä  
default.invalid.email.message=Attributet [{0}] för klassen [{1}] med värde [{2}] är int  
default.invalid.range.message=Attributet [{0}] för klassen [{1}] med värde [{2}] är int  
default.invalid.size.message=Attributet [{0}] för klassen [{1}] med värde [{2}] har en  
default.invalid.max.message=Attributet [{0}] för klassen [{1}] med värde [{2}] överskri  
default.invalid.min.message=Attributet [{0}] för klassen [{1}] med värde [{2}] är mindr  
default.invalid.max.size.message=Attributet [{0}] för klassen [{1}] med värde [{2}] öve  
default.invalid.min.size.message=Attributet [{0}] för klassen [{1}] med värde [{2}] är  
default.invalid.validator.message=Attributet [{0}] för klassen [{1}] med värde [{2}] är  
default.not.inlist.message=Attributet [{0}] för klassen [{1}] med värde [{2}] är inte g  
default.blank.message=Attributet [{0}] för klassen [{1}] får inte vara tomt  
default.not.equal.message=Attributet [{0}] för klassen [{1}] med värde [{2}] får inte v  
default.null.message=Attributet [{0}] för klassen [{1}] får inte vara tomt  
default.not.unique.message=Attributet [{0}] för klassen [{1}] med värde [{2}] måste var
```

# I18n

The screenshot shows the H2 Console interface running in a web browser. The title bar says "H2 Console". The address bar shows the URL "localhost:8080/employee/dbconsole/login.do?jsessionid=d3b4a0077f6267c9bc4b0f9". Below the address bar is a toolbar with various links like Apple, Yahoo!, Google Maps, YouTube, Wikipedia, Toodledo, Diverse, and Cache. The main area has a sidebar with database schema navigation and a central SQL editor and results table.

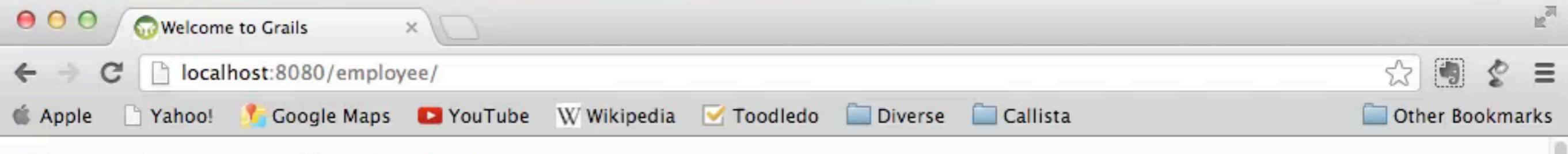
**SQL Statement:**

```
SELECT * FROM LOCALIZATION
```

**Results:**

```
SELECT * FROM LOCALIZATION;
```

ID	VERSION	CODE	DATE_CREATED	L
1	0	localization.cache.hits	2013-01-06 16:47:31.752	2 1
2	0	localization.new	2013-01-06 16:47:31.824	2 1
3	0	localization.not.found	2013-01-06 16:47:31.836	2 1
4	0	localization.locale.help	2013-01-06 16:47:31.849	2 1



Home Employee Search Login

#### APPLICATION STATUS

App version: 0.1  
Grails version: 2.2.0  
Groovy version: 2.0.5  
JVM version: 1.7.0\_10  
Reloading active: true  
Controllers: 14  
Domains: 3  
Services: 19  
Tag Libraries: 25

#### INSTALLED PLUGINS

logging - 2.2.0  
core - 2.2.0  
dataSource - 2.2.0  
servlets - 2.2.0  
urlMappings - 2.2.0  
i18n - 2.2.0  
dynamicController - 0.4  
controllers - 2.2.0  
codecs - 2.2.0  
filters - 2.2.0  
appInfo - 1.0.2  
databaseMigration -  
1.2.2  
fields - 1.3  
resources - 1.1.6  
localizations - 1.4.4.6  
axis2 - 0.7.0  
cloudSupport - 1.0.11  
appInfoHibernate - 0.2

# Welcome to Grails

Congratulations, you have successfully started your first Grails application! At the moment this is the default page, feel free to modify it to either redirect to a controller or display whatever content you may choose.

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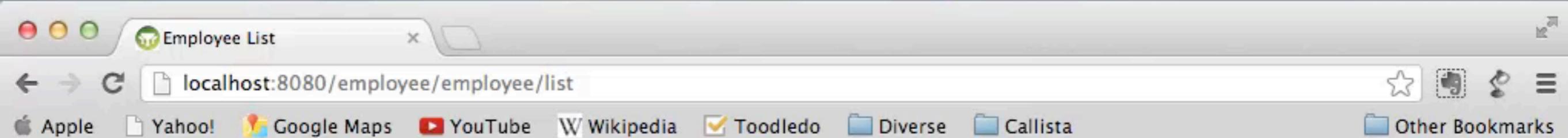
# Searching

```
plugins {  
    runtime ":searchable:0.6.4"  
}  
  
class Employee {  
    static searchable = true  
  
    String firstName  
    String middleName  
    String lastName  
    String email
```



Compass





Home Employee Search Logout

EMPLOYEE

[Employee List](#)

[+ Create Employee](#)

# Employee List

Last Name	Middle Name	First Name	Email	
Larsson	middleName	Magnus	ml@callistaenterprise.se	Show »
Eltes	middleName	Johan	je@callistaenterprise.se	Show »
Carlén		Johannes	jc@callistaenterprise.se	Show »
Västernäs	middleName	Jan	jv@callistaenterprise.se	Show »

# Ajax-based incremental searching

```
plugins {  
    runtime ":jquery:1.8.3"  
}  
  
<div id="header">  
    <h1><a href="http://grails.org/Searchable+Plugin" target="_blank">Grails <span>Searchable</span></a></h1>  
    <g:form url="[controller: "searchable", action: "index"]" id="searchableForm" name="searchableForm" method="get" style="margin-top: 10px;">  
        <g:remoteField name="q" id="q" value="${params.q}" size="50" paramName="q" update="main" />  
    </g:form>  
    <div style="clear: both; display: none;" class="searchResult" id="searchResult" data-template="http://lucene.apache.org/javadocs/api-3.0.0/index.html"></div>  
</div>  
<div id="main">  
    <g:render template="searchResult"></g:render>  
</div>
```

# Authentication

```
plugins {  
  
    runtime ":spring-security-core:1.2.7.3"  
    runtime ":spring-security-ldap:1.0.6"  
  
}  
  
grails.plugins.springsecurity.ldap.context.server = 'ldap://localhost:10389'  
grails.plugins.springsecurity.ldap.search.base = 'ou=users,dc=example,dc=com'
```

```
@Secured(['ROLE_USERS'])  
class EmployeeController {
```



The screenshot shows the Eclipse IDE interface with the ApacheDS plugin loaded. The top menu bar includes Eclipse, File, Edit, Navigate, Search, Project, LDAP, Run, Window, Help, and a battery icon indicating it is charged at 17:45. The title bar displays "LDAP - uid=bbe,ou=users,dc=example,dc=com - ApacheDS - Eclipse SDK - /share/svn/Enterprise/Internt/Cadec/Cadec2013/Presentations/G...".

The main workspace contains several views:

- LDAP Browser View (Top Left):** Shows the directory structure under "Root DSE (4)". The node "uid=bbe" is selected and highlighted in blue.
- EmployeeController.g View (Top Center):** Displays a Java code snippet for an EmployeeController class.
- Outline View (Top Right):** Shows the outline of the selected LDAP entry, listing attributes like uid, sn, cn, userPassword, and objectClass.
- Connections View (Bottom Left):** Shows a connection to "ApacheDS".
- Modification Logs View (Bottom Center):** Shows a log area with tabs for "Modification Logs" and "Search Logs".
- Progress View (Bottom Right):** Shows a message: "No operations to display at thi...".

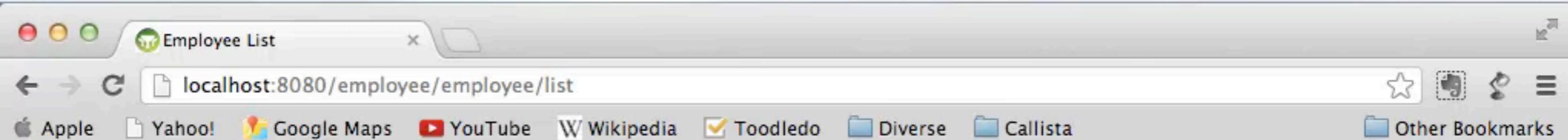
The central panel displays the attribute values for the selected LDAP entry:

Attribute Description	Value
<i>objectClass</i>	<i>inetOrgPerson (structural)</i>
<i>objectClass</i>	<i>organizationalPerson (structural)</i>
<i>objectClass</i>	<i>person (structural)</i>
<i>objectClass</i>	<i>top (abstract)</i>
<i>cn</i>	Björn Beskow
<i>sn</i>	Beskow
<i>displayName</i>	Björn Beskow
<i>uid</i>	bbe
<i>userPassword</i>	SHA hashed password

# Audit Logging

```
plugins {  
    runtime ":audit-logging:0.5.4"  
}
```

```
@ToString  
class Employee {  
    static auditable = true  
    String firstName  
    String middleName  
    String lastName  
    String email
```



Home Employee Search Logout

EMPLOYEE

Employee List

+ Create Employee

# Employee List

Last Name	Middle Name	First Name	Email	
Larsson	middleName	Magnus	ml@callistaenterprise.se	Show »
Eltes	middleName	Johan	je@callistaenterprise.se	Show »
Carlén		Johannes	jc@callistaenterprise.se	Show »
Västernäs	middleName	Jan	jv@callistaenterprise.se	Show »

# Monitoring

```
plugins {  
    runtime ':app-info:1.0.2'  
    runtime ':app-info-hibernate:0.2'  
}
```

App Info

localhost:8080/employee/adminManage/

Apple Yahoo! Google Maps YouTube Wikipedia Toodledo Diverse Callista Other Bookmarks

Attributes Properties Info Hibernate

# Scheduling

```
plugins {  
    runtime ":quartz:1.0-RC2"  
    runtime ":quartz-monitor:0.2"  
}  
//
```



# Scheduling



```
class ExportJob {

    def exportService

    static triggers = {
        cron cronExpression: "0 0 0 * * ?"
    }

    def execute() {
        exportService.exportEmployees()
    }
}
```



# Scheduling

[Home](#) [Employee](#) [Search](#) [Login](#)

[Home](#)

## Quartz Jobs

Sunday, January 6, 2013

11:40:44 AM

Name	Last Run	Next Scheduled Run	Actions
cadec.ExportJob 	Sun Jan 06 11:39:47 CET 2013	12:19:16	  

© Callista Enterprise 2013

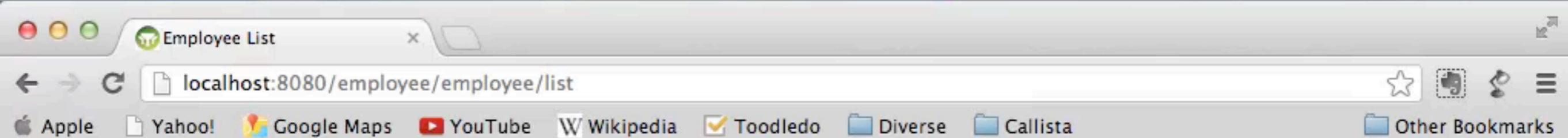


# Mail

```
plugins {  
    runtime ":mail:1.0.1"  
}
```

# Mail

```
class EmployeeController {  
    def mailService  
  
    static scaffold = true  
  
    def create() {  
        switch (request.method) {  
            case 'GET':  
                [employeeInstance: new Employee(params)]  
                break  
            case 'POST':  
                def employeeInstance = new Employee(params)  
                if (!employeeInstance.save(flush: true)) {  
                    render view: 'create', model: [employeeInstance: employeeInstance]  
                    return  
                }  
                mailService.sendMail {  
                    to employeeInstance.email  
                    subject "Employed"  
                    body "You are now a Callista Employee!"  
                }  
        }  
    }  
}
```



Home Employee Search Logout

EMPLOYEE

Employee List

+ Create Employee

# Employee List

Last Name	Middle Name	First Name	Email	
Larsson	middleName	Magnus	ml@callistaenterprise.se	Show »
Eltes	middleName	Johan	je@callistaenterprise.se	Show »
Carlén	middleName	Johannes	jc@callistaenterprise.se	Show »
Västernäs	middleName	Jan	jv@callistaenterprise.se	Show »

# JMS

```
plugins {  
    runtime ":jms:1.2"  
}  
  
beans = {  
    jmsConnectionFactory(SingleConnectionFactory) {  
        targetConnectionFactory = { ActiveMQConnectionFactory cf ->  
            brokerURL = 'tcp://localhost:61616'  
        }  
    }  
}
```

# JMS

```
class SenderController {  
  
    def jmsService  
  
    def send(String message) {  
        jmsService.send(queue: "aQueue", message, "standard", null)  
        render "Message '${message}' sent"  
    }  
}
```

# JMS

```
class ExportService {  
  
    def employeeService  
  
    static exposes = ["jms"]  
    static destination = "aQueue"  
    @TypeChecked  
    def onMessage(message) {  
        if (message == "export") {  
            exportEmployees()  
        } else {  
            println "Unknown message '${message}' received"  
        }  
    }  
  
    def exportEmployees() {  
        new FileWriter("/tmp/employees.xml") << new StreamingMarkupBuilder().bind {  
            employees {  
                employeeService.getEmployees().each {emp ->  
                    employee(FirstName:emp.firstName,  
                            LastName:emp.lastName,  
                            EMail:emp.email)  
                }  
            }  
        }  
        println "Employees exported"  
    }  
}
```

Grails - http://localhost:8888/jms-sender - Eclipse SDK - /share/svn/Enterprise/Internt/Cadec/Cadec2013/Presentations/G&G/workspace

Project Explorer X SenderController.gro jms-sender activemq/pom.xml activemq.launch >s

activemq target activemq.launch pom.xml employee EmployeeSwingClient jms-sender testa

GRAILS

Message: |

Send

Console X Markers Progress Console

employee (run-app) [Grails] /Library/Java/JavaVirtualMachines/jdk1.7.0\_10.jdk/Contents/Home/bin/java (6 jan 2013 14:13:15)

```
I Compiling 2 source files....  
I Running Grails application  
Configuring Spring Security Core ...  
... finished configuring Spring Security Core  
Configuring Spring Security LDAP ...  
... finished configuring Spring Security LDAP  
I Server running. Browse to http://localhost:8080/employee
```

Servers X

No servers available. Define a new server from the [new server wizard...](#)

# Remoting

```
plugins {  
    runtime ":remoting:1.3"  
}  
  
class EmployeeService implements IEmployeeService {  
    static expose = ['httpinvoker']  
    Employee getEmployee(String id) {  
        return Employee.get(id)  
    }  
    List<Employee> getEmployees() {  
        return Employee.list()  
    }  
}
```



Grails - employee/grails-app/services/cadec/EmployeeService.groovy - Eclipse SDK - /share/svn/Enterprise/Internt/Cadec/Cadec2013/Pres...

Project Explorer

- activemq
- employee
- EmployeeSwingClient
- jms-sender
- testa

BuildConfig.groovy EmployeeService.groovy

```
package cadec

class EmployeeService implements IEmployeeService {
    static expose = ['httpinvoker']

    Employee getEmployee(String id) {
        return Employee.get(id)
    }

    List<Employee> getEmployees() {
        return Employee.list()
    }
}
```

Console Markers Progress Console

employee (run-app) [Grails] /Library/Java/JavaVirtualMachines/jdk1.7.0\_10.jdk/Contents/Home/bin/java (6 jan 2013 14:13:15)

I Running Grails application  
 Configuring Spring Security Core ...  
 ... finished configuring Spring Security Core  
 Configuring Spring Security LDAP ...  
 ... finished configuring Spring Security LDAP  
 I Server running. Browse to <http://localhost:8080/employee>  
 Employees exported  
 I Compiling 3 source files.

Servers

No servers available. Define a new server from the [new server wizard...](#)

Writable Smart Insert 5 : 35 Update MoreUnit Annotations

# Restful Web Services

```
plugins {  
    runtime ":json-rest-api:1.0.11"  
}  
  
class Employee implements Serializable {  
    static expose = "employee"  
    String firstName  
    String middleName  
    String lastName  
    String email
```

Welcome to Grails

localhost:8080/employee/

Apple Yahoo! Google Maps YouTube Wikipedia Toodledo Diverse Callista Other Bookmarks

Home Employee Search Login

**APPLICATION STATUS**

App version: 0.1  
Grails version: 2.2.0  
Groovy version: 2.0.5  
JVM version: 1.7.0\_10  
Reloading active: true  
Controllers: 14  
Domains: 3  
Services: 19  
Tag Libraries: 25

**INSTALLED PLUGINS**

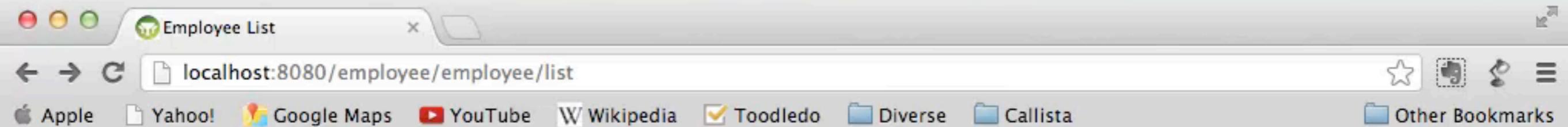
logging - 2.2.0  
core - 2.2.0  
dataSource - 2.2.0  
urlMappings - 2.2.0  
i18n - 2.2.0  
codecs - 2.2.0  
appInfo - 1.0.2  
databaseMigration -  
1.2.2  
fields - 1.3  
resources - 1.1.6  
localizations - 1.4.4.6  
axis2 - 0.7.0  
cloudSupport - 1.0.11  
appInfoHibernate - 0.2  
jsonRestApi - 1.0.11  
dynamicController - 0.4  
mail - 1.0.1  
webxml - 1.4.1

# Welcome to Grails

Congratulations, you have successfully started your first Grails application! At the moment this is the default page, feel free to modify it to either redirect to a controller or display whatever content you may choose.

# Restful Web Services

```
class EmployeeController {  
  
    def employeeService  
  
    def show() {  
        def employeeInstance = employeeService.getEmployee(params.id)  
        if (!employeeInstance) {  
            flash.message = message(code: 'default.not.found.message', args: [message  
            }  
        withFormat {  
            html employeeInstance: employeeInstance  
            xml { render employeeInstance as XML }  
            json { render employeeInstance as JSON }  
        }  
    }  
}
```



Home Employee Search Logout

EMPLOYEE

Employee List

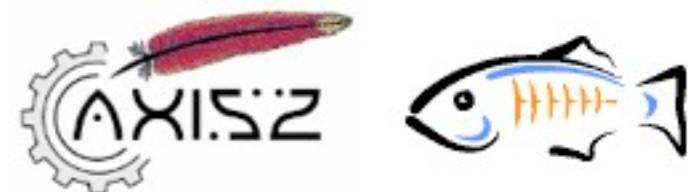
+ Create Employee

# Employee List

Last Name	Middle Name	First Name	Email	
Larsson	middleName	Magnus	ml@callistaenterprise.se	Show »
Eltes	middleName	Johan	je@callistaenterprise.se	Show »
Carlén	middleName	Johannes	jc@callistaenterprise.se	Show »
Västernäs	middleName	Jan	jv@callistaenterprise.se	Show »

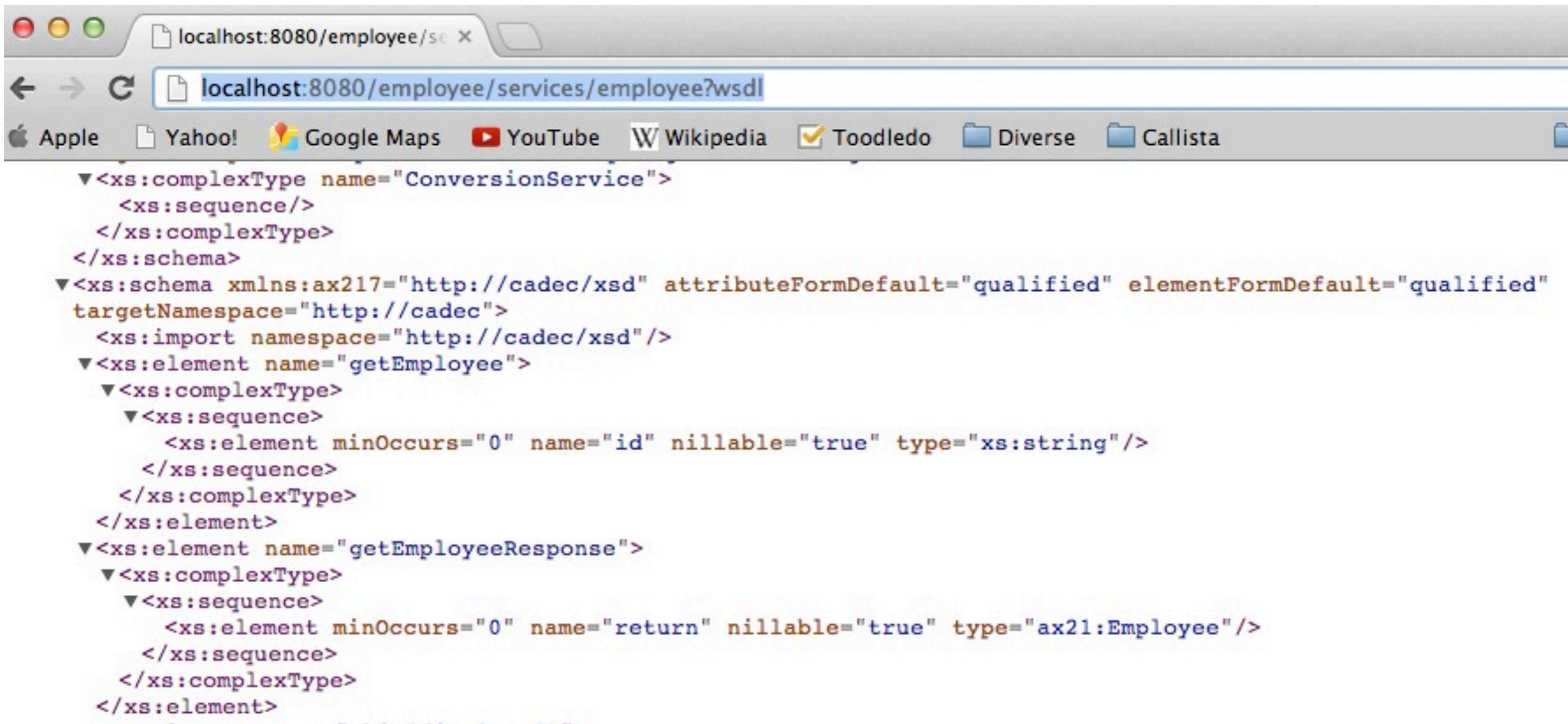
# SOAP Web Services

```
plugins {  
    runtime ":axis2:0.7.0"  
}  
  
class EmployeeService implements IEmployeeService {  
    static expose = ['axis2']  
    Employee getEmployee(String id) {  
        return Employee.get(id)  
    }  
    List<Employee> getEmployees() {  
        return Employee.list()  
    }  
}
```



**Apache CXF**

# SOAP Web Services



The screenshot shows a Mac OS X desktop with a web browser window open. The address bar displays 'localhost:8080/employee/services/employee?wsdl'. The browser's toolbar includes links to Apple, Yahoo!, Google Maps, YouTube, Wikipedia, Toodledo, Diverse, and Callista. The main content area of the browser shows the XML structure of a WSDL document.

```
<xs:complexType name="ConversionService">
  <xs:sequence/>
</xs:complexType>
</xs:schema>
<xs:schema xmlns:ax217="http://cadec/xsd" attributeFormDefault="qualified" elementFormDefault="qualified"
  targetNamespace="http://cadec">
  <xs:import namespace="http://cadec/xsd"/>
  <xs:element name="getEmployee">
    <xs:complexType>
      <xs:sequence>
        <xs:element minOccurs="0" name="id" nillable="true" type="xs:string"/>
      </xs:sequence>
    </xs:complexType>
  </xs:element>
  <xs:element name="getEmployeeResponse">
    <xs:complexType>
      <xs:sequence>
        <xs:element minOccurs="0" name="return" nillable="true" type="ax21:Employee"/>
      </xs:sequence>
    </xs:complexType>
  </xs:element>
```

# Plugins used ([grails.org/plugins](http://grails.org/plugins))



- build-test-data
- fixtures
- auto-test
- database-migration
- cloud-foundry
- mongodb
- searchable
- localizations
- spring-security-core,  
spring-security-ldap
- audit-logging
- app-info,  
app-info-hibernate
- quartz, quartz-monitor
- mail
- jms
- remoting
- json-rest-api
- axis2

# Quiz: How many lines of code?

- Migrations: 1 line
- CloudForge deploy: 1 line
- MongoDB: 2 lines
- I18n: 1 line
- Searching: 2 lines
- Ajax-based search: 16 lines
- LDAP auth: 5
- Audit logging: 2 lines
- AppServer monitoring: 2 lines
- Quartz scheduling: 11 lines
- SMTP mail: 6 lines
- JMS sender: 7 lines
- JMS message-driven service: 9 lines
- Remoting: 2 lines
- Rest-API: 2 lines
- Rest-based controller: 4 lines
- Axis2 service: 2 line
- **Total: 75 lines**

# Conclusions

- Groovy & Grails provides an extremely productive extension to Java & JavaEE
- Many shortcomings in the tooling and plugins portfolio have been addressed recently
  - remains to be seen if it is enough to lead to more general adoption



# Questions

