

# Automatic testing of Enterprise Applications...

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[www.jugtorino.it](http://www.jugtorino.it)

...using Open  
Source tools :)



# About me

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- C Developer since 1988
- Java developer since 1996
- XP Coach during 2000-2001
- Lead coordinator and co-founder of JUG Torino in 2001
- Sun Java Champion since 2005





# Agenda

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- Test... duh?
- Enterprise systems
- Acceptance test tools
- FitNesse
- Live demo!
- Selenium
- Live demo!
- Q&A

*Advisor: this won't  
be a tutorial!*



# Test... duh?

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- Tests are part of development cycle
- They may be used to drive development (TDD)
- They're used to block regressions
- Two kind of tests:
  - Unit Tests
  - Acceptance Tests
- Sometimes they mean just time used to handle project delays :(



# Unit Tests

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- Development and anti-regression
- Specific tool for each language
- Characteristics:
  - written by a developer
  - executed by a developer
  - data are self-contained inside tests
  - don't drive UI
- Writing unit tests require java knowledge



# Unit Tests: tools

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The most known tools in Java:

- Jetif
- TestNG
- JUnit
  
- In these days JUnit is a de-facto standard



# Time for a question :) )

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- Who wrote JUnit?



# JUnit

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- Built by
  - Kent Beck (XP “father”)
  - Erich Gamma (GOF star)
- Tests are developed as Java classes
- Built-in in most famous IDEs
- Works in text and graphic mode
- May produce HTML reports
- May be used also for integration or functional testing





# JUnit

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**Live Demo?**



# Acceptance tests

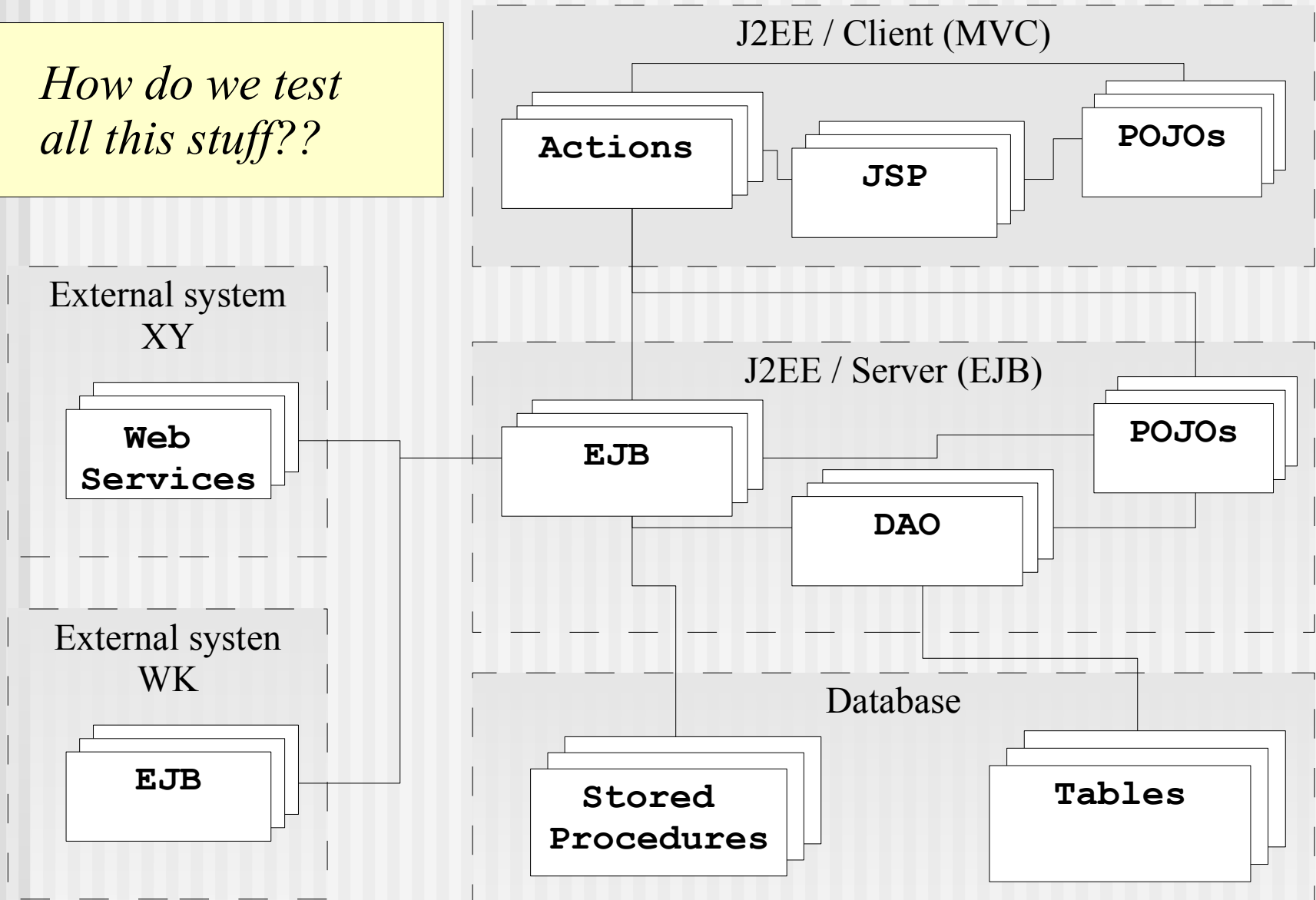
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- Functional tests on:
  - business functions
  - use cases
- They interact with
  - User interfaces
  - Application services
- Written by an analyst or, better, directly by a customer
- Must run automatically, eventually by non-technical people



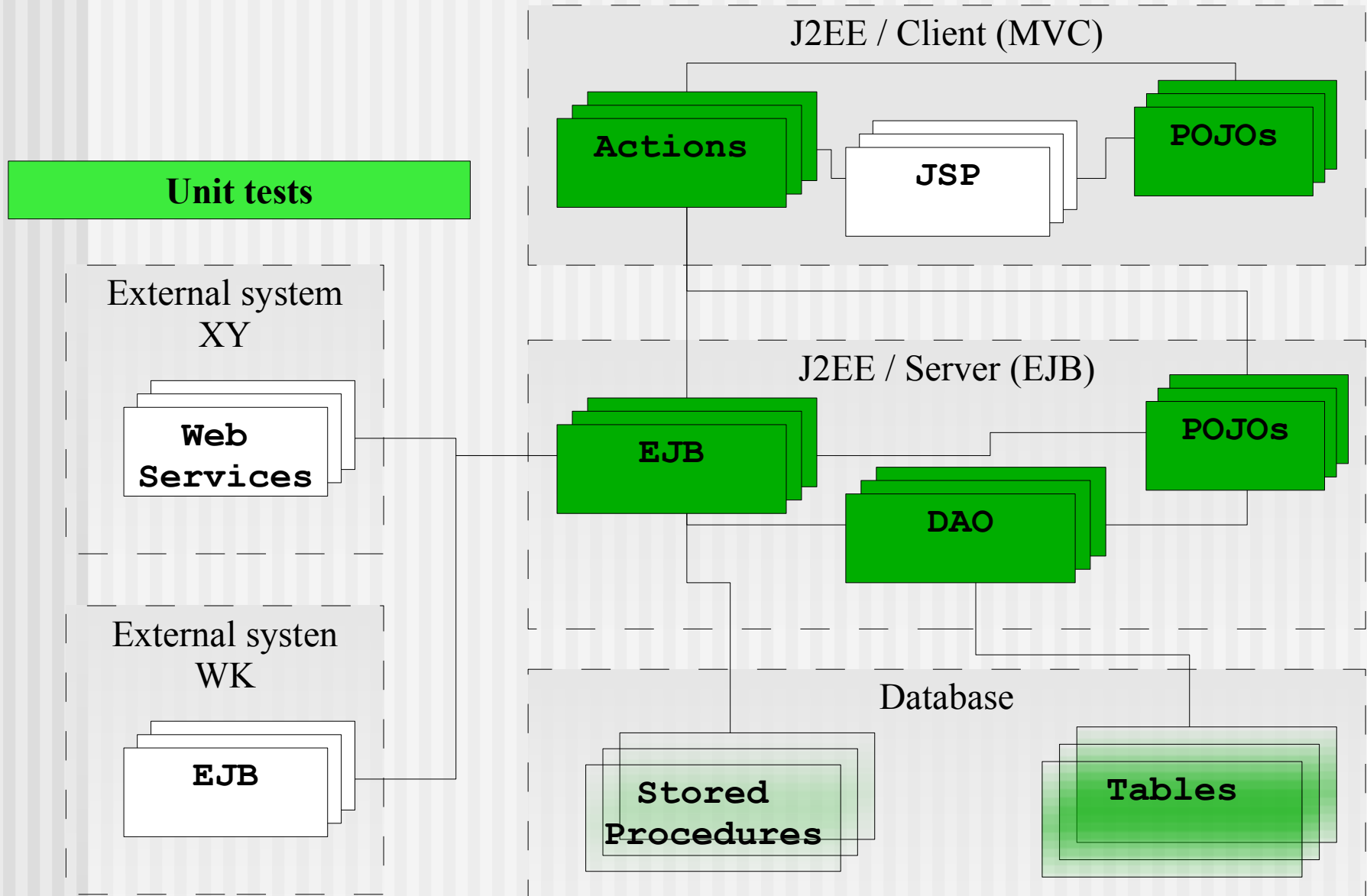
# Enterprise systems

*How do we test all this stuff??*





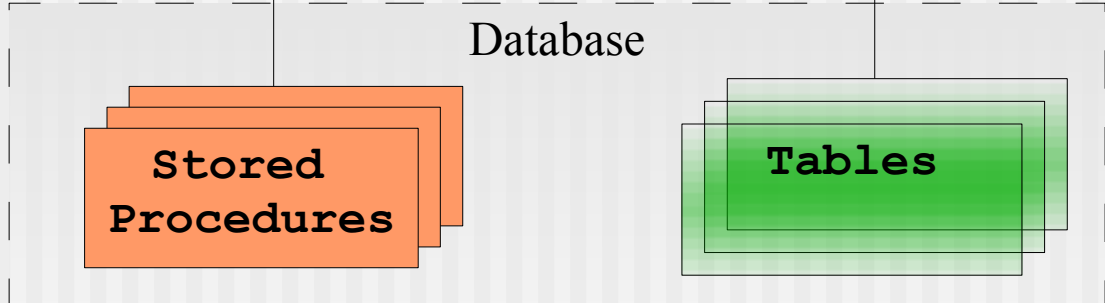
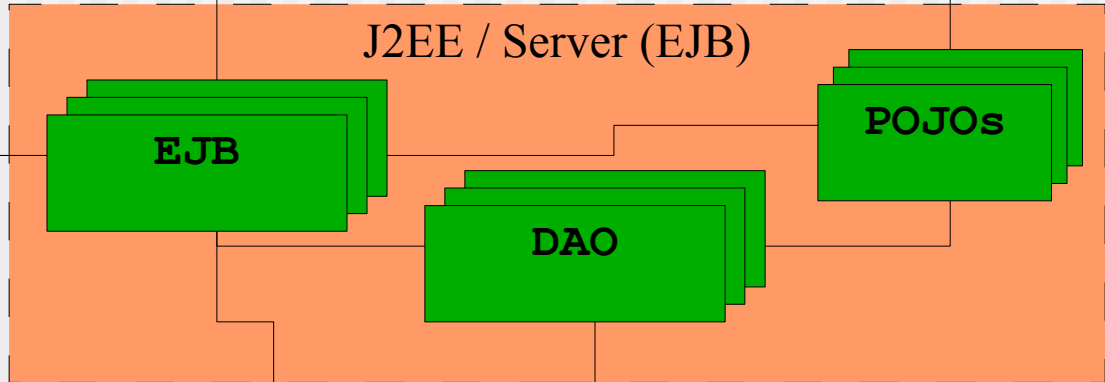
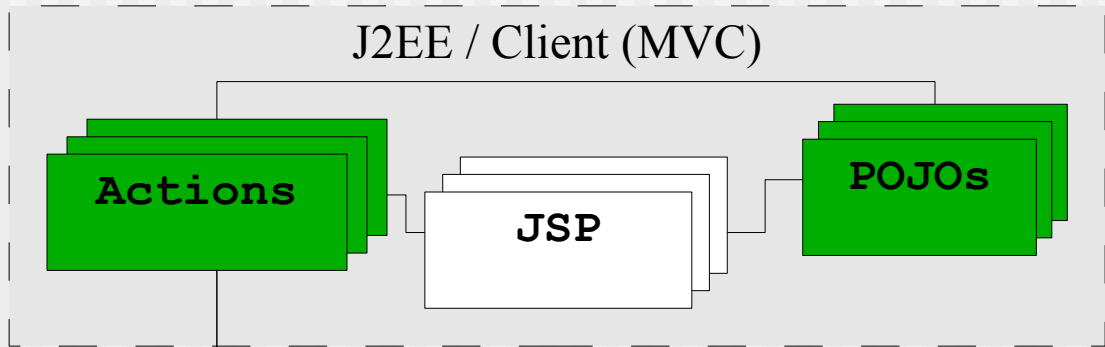
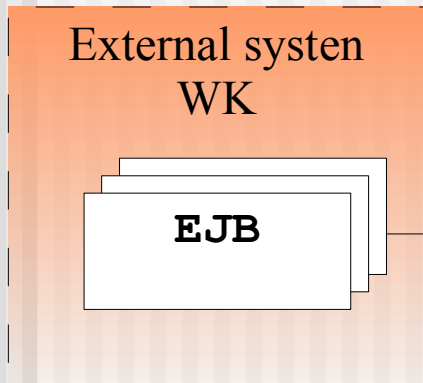
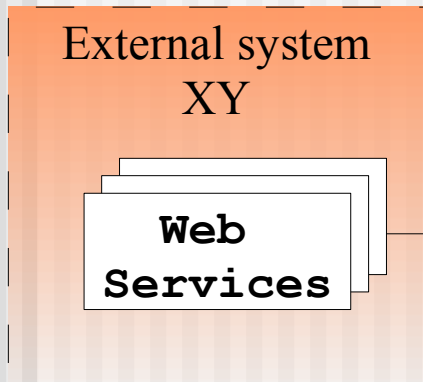
# Enterprise systems





# Enterprise systems

Acceptance tests (services)  
Unit tests





# Enterprise systems

Acceptance tests (UI)

Acceptance tests (services)

Unit tests

J2EE / Client (MVC)

Actions

JSP

POJOs

External system  
XY

Web  
Services

J2EE / Server (EJB)

EJB

DAO

POJOs

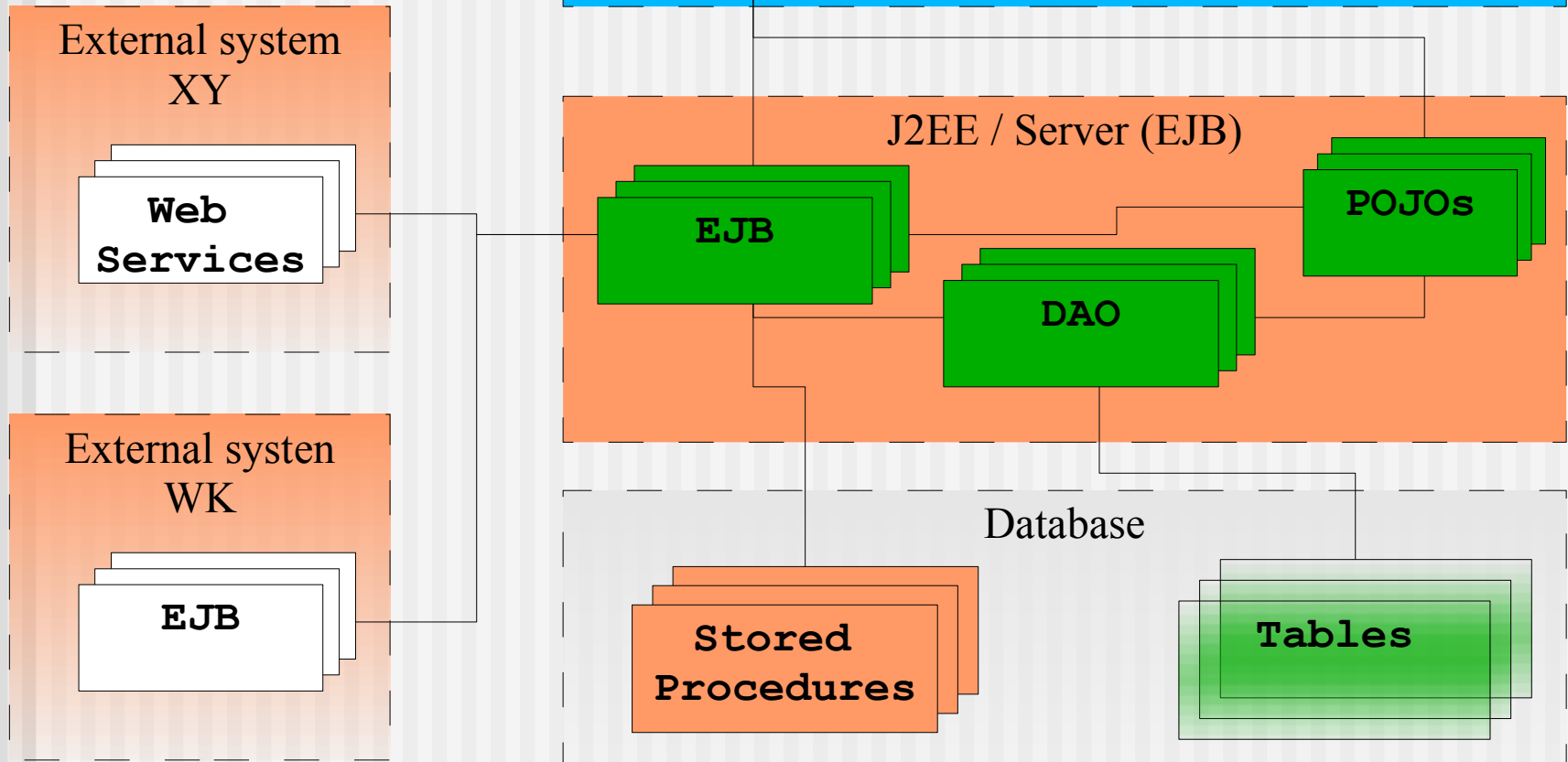
External system  
WK

EJB

Database

Stored  
Procedures

Tables





# Acceptance tests: tools

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More than 50 tools are available!

Designed for:

- fat-client applications
- web applications
- services oriented systems
- general purpose
- ...

All open source :)



# Acceptance tests: tools

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- IE Automation
- WebTst
- WebInject
- **Watir** e **Watij**
- TextTest
- TestGen4Web
- TclWebTest
- Solex
- Staf
- SoapUI
- SharpRobo
- **Selenium**
- Samie
- **Sahi**
- Qat
- Pounder
- Pamie
- MaxQ
- Latka
- **JWebUnit**
- Jemmy
- Jamaleon
- Jacobie
- **FitNesse**





# Break!

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I'll be also at JavaPolis!

**JavaPolis!**

Anyway, **don't miss that event!**

<http://www.javapolis.com/>



# FitNesse

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- It's a collaboration tool
- It's a tool to manage tests
  - you define tests
  - you launch tests clicking a button and results are immediately showed
- It's a Wiki
  - allows you also to share information within tests
- It's web server
  - no setup, click'n'run!



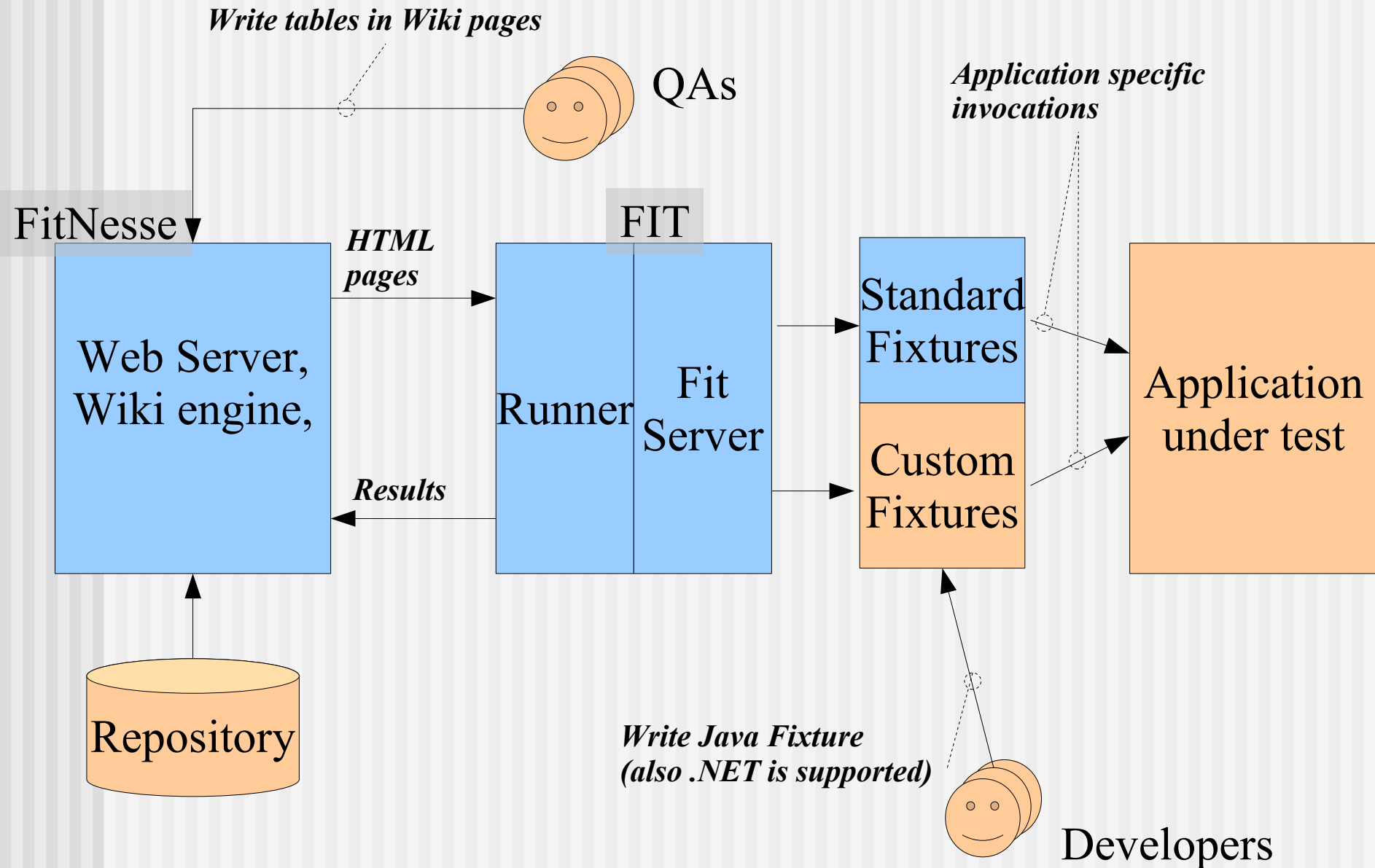
# FitNesse

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- Integration and functional tests
- Tests are written as tables in a Wiki
- It's possible to import / export such tables as Excel sheets
- Java knowledge is needed to write test skeleton (fixture)
- When writing or executing test cases Java knowledge is not needed



# FitNesse





# FitNesse

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- It may be used to test:
  - business logic
  - application services, internal or external
  - stored procedures
- It's possible to manage test chains hierarchically
- You can execute tests directly from the Wiki
- It produces detailed HTML reports
- It may be automated by an ANT task



# FitNesse

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**Live Demo!**



# Time for a question :) )

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- Who wrote FitNesse?



# Selenium

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- Functional test on web applications
- Java knowledge is not needed to write and execute tests
- Tests are automatically recorded by a Firefox plug-in
- Tests may be executed on most browsers / OS
- Tests are recorded as HTML files
- It's possible to import tables written in Excel





# Selenium

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- It's written in Javascript / DHTML
- Uses a javascript bot “injected” in application HTML pages under test
- Allows you to:
  - send commands to browser
  - interact with widgets as a user
  - execute javascript code
  - localize page elements in different ways
- Extensible using javascript
- It may be automated by an ANT task



# Selenium tools

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- Selenium IDE
  - a complete IDE implemented as a Firefox extension, allows test record, edit and debug.
- Selenium core
  - web application to execute test suites with high degree of control
- Selenium Remote Control
  - allows you to write automated web application UI tests in any programming language against any HTTP website



# Selenium IDE

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**Live Demo!**



# Selenium Core

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**Live Demo!**



# Selenium ANT integration

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**Live Demo!**



# Q&A

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JUnit: <http://www.junit.org>

FitNesse: <http://www.fitnesse.org>

Selenium: <http://www.openqa.org/selenium>



<http://www.jugtorino.it>



# The really big question!

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- Win a K500i!
- Thanks to Aaron Houston (Sun) support! :)
- Ready?
- 4 question, difficult decreasing



# Question 1

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- Which Italian project (or which JUG) won the Duke Award last year?





# Question 2

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- Who knows the names of at least FOUR italian JUGS?



# Question 3

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- Who scored the goal for Italy in the latest Soccer World Championship final?



# Question 4

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- What was the color of Napoleon white horse?
- :)