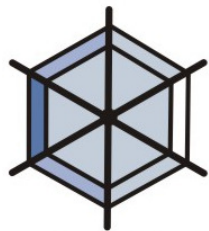


Open source tools used in effective testing

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Agenda

Story so far

Some advantages of open source tools

Some hard hitting tools

Community

Downsides of open source tools

Tools stack

The story so far

- Clients are no longer looking for completing projects on deadlines, delivering set of deliverables, it's a given thing....
- Any software solution should add business value in terms of cost savings..
- Cost savings through the software solutions:
 - Revenue increase or Cost savings
- **Mantra of today is On time, High Quality &
At NO cost**

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Advantages



Take control of your software

Open source software gives you the power to control your software's code



Escape Vendor Lock-in

Disappointment and dissatisfaction with a vendor's support and service is a reality for all IT managers



Lower cost of ownership

There are no license fees for an open source software, reducing annual license fees cost to zero.



Greater Security & Quality

Developers globally contribute and analyze the code making it more secure and constantly increasing the quality



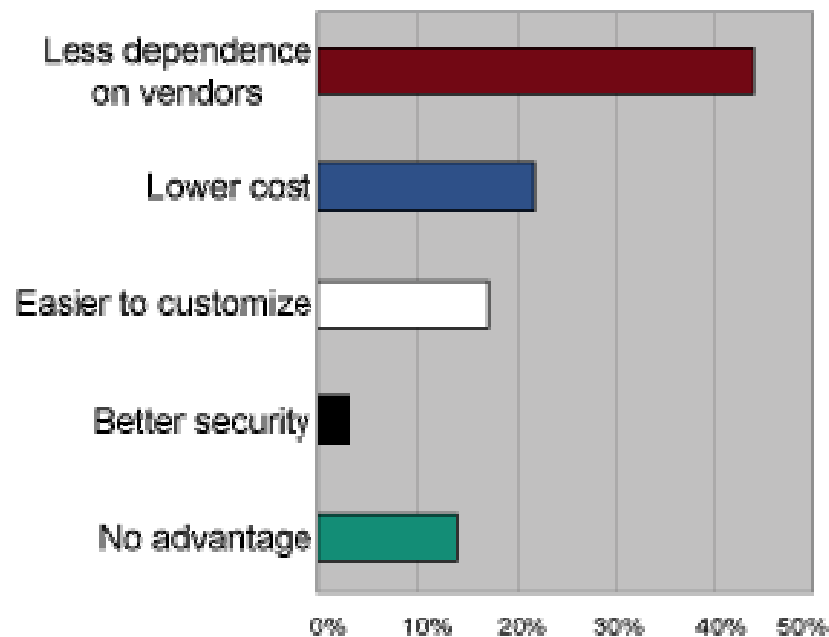
Continuity

Proprietary software company might shut shop or decide to discontinue services for a software

How the advantages weigh

- Surprisingly, the biggest advantage isn't the cost....

What is the most important advantage in the use of open source?



Source: <http://www.computereconomics.com/article.cfm?id=1043>

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Case 1: Version One...Team Edition

VersionOne is an excellent tool to ease understanding of agile and simplifies adoption of agile (even when one has no or very basic knowledge of Agile)

The process:

- **Product/Project Planning** – Add features, i.e. add stories.
- **Release planning** – Create /Plan releases for your project/product.
- **Sprint Planning** – Identify number of iterations to be performed and features to be included in each iteration.
- **Tracking** – Track Iterations, tasks, test plans, defects etc.
- **View predefined reports** like Velocity Trend, Test Trend to gauge the full picture.

Version One...Team Edition

Version One has integration plugins available for both open source and known commercial software.

The image displays a grid of integration plugins for Version One Team Edition, organized into ten categories. Each category is represented by a white rounded rectangle with a title and a row of logos. The logos are accompanied by small colored circles (yellow, blue, or red) indicating their status or availability. A 'NEW' badge is present above the Jenkins logo in the Continuous Integration category.

- Continuous Integration:** Visual Studio, electric CLOUD, CruiseControl.NET, cruise-control, Hudson, Jenkins (NEW), anthillpro.
- Defect Management:** Bugzilla, IBM Rational CLEARQUEST, JIRA, hp Quality Center, TestTrack Pro 2009, ALMANTUS.
- IDE:** Visual Studio, IntelliJ IDEA, eclipse, Tasktop.
- Test Management:** hp Quality Center, hp QuickTest Pro, AutomatedQA TestComplete, SilkCentral® Test Manager™.
- Source Code Management:** Visual Studio Team Foundation Server, PERFORCE SOFTWARE, SUBVERSION, codesion CLOUD SERVICES, AccuRev, git.
- Product & Project Management:** Microsoft Office Project, Feature Plan, innovation games (NEW).
- Customer Relationship Management:** salesforce.
- Free Add-Ons:** Search, Task Management, Screenshot, Estimation Tool, Tortoise SVN, Email/Conversation.

Case 2: JMeter

- **What?**

- Apache Jmeter is an open source stress testing tool (for client/server software), runs as desktop and command line application.
- A 100% pure java application so supports 100% portability.

- **Features**

- JMeter can be used to simulate a heavy load on a server, network or object to test its strength or to analyze overall performance under different load types.
- Can load test functional behavior and measure performance.
- Can be used for many different type of servers as- HTTP(S), SOAP, Database via JDBC, LDAP, JMS, POP3(S) and IMAP(S).
- Gives liberty to create your own add-ons and plugins.

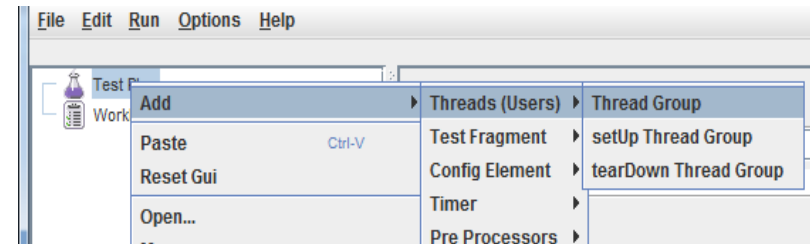
JMeter

- **Elements of a test plan**

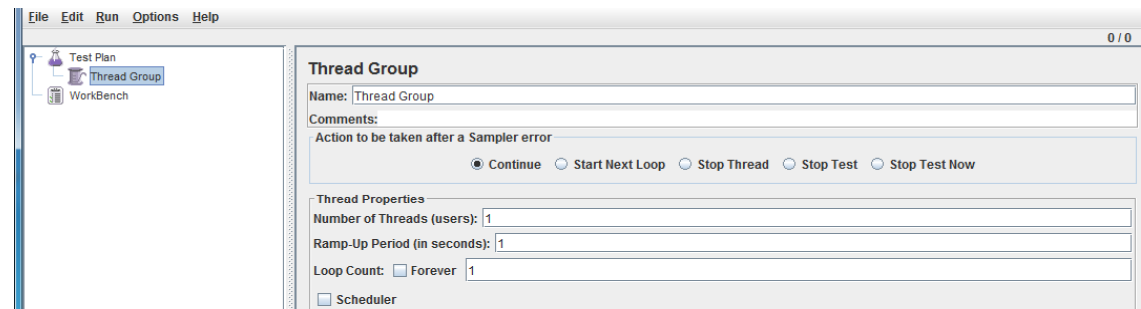
- ThreadGroup: These are the beginning point of any test plan in JMeter. Here we can define number of threads, ramp-up period and number of times the test is to be execute etc.
- Controllers: Samplers and Logical Controllers, these drive the processing of test.
- Samplers: Samplers include: FTP Request, HTTP Request, JDBC Request etc
- Listeners: Listeners are to retrieve the information JMeter gathers. It may be by graph, tree or basic HTML or XML representations.

Processing a basic HTTP request by JMeter

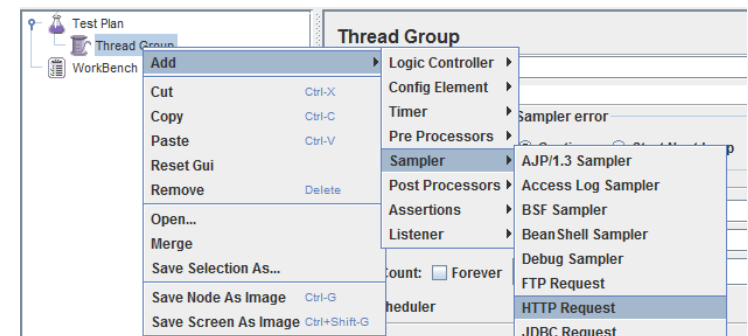
- Run the JMeter. Right click on 'Test Plan' on right hand side menu. Add new 'Thread Group'.



- Fill up the entries in left hand side form appeared after the above action.



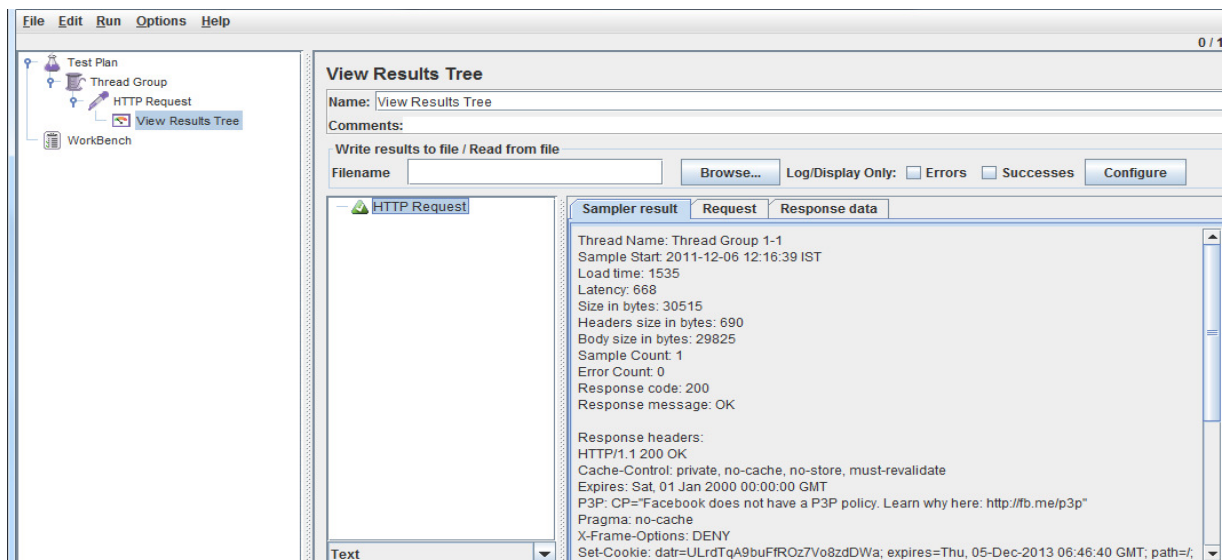
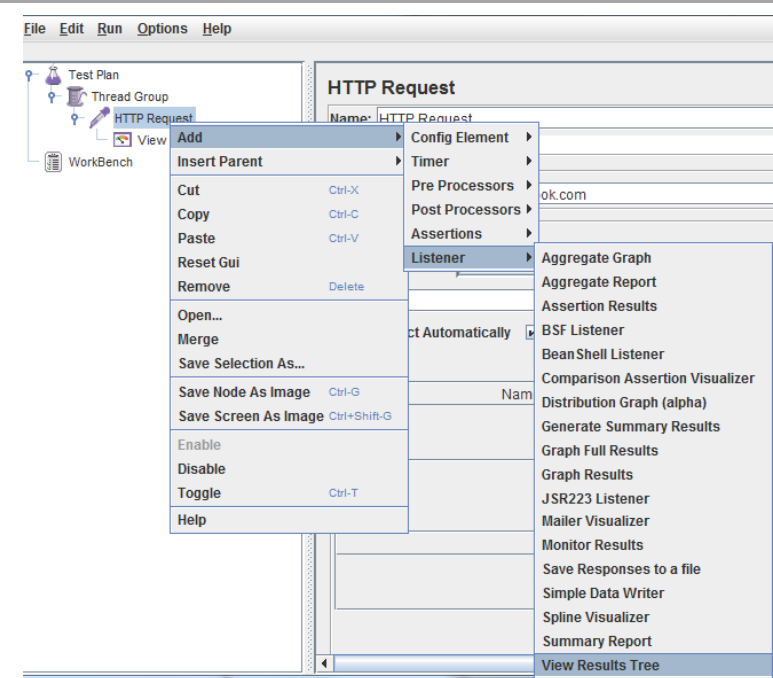
- Now, right click on 'Thread Group' and add a new Sampler of HTTP request.



- Fill the details in newly appeared HTTP request form.
- Right click on HTTP Request on right hand side menu and add a Listener to retrieve the results of test.
- Run the test from option appearing in menu bar.

Contd...

- Right click on HTTP Request on right hand side menu and add a Listener to retrieve the results of test.
- Run the test from option appearing in menu bar.
- See the results as below.



Case 3: AutoIT features

- Easy to learn BASIC-like syntax
- Simulate keystrokes and mouse movements
- Manipulate windows and processes
- Interact with all standard windows controls
- Scripts can be compiled into standalone executable
- Create Graphical User Interfaces (GUIs)

AutoIT features contd...

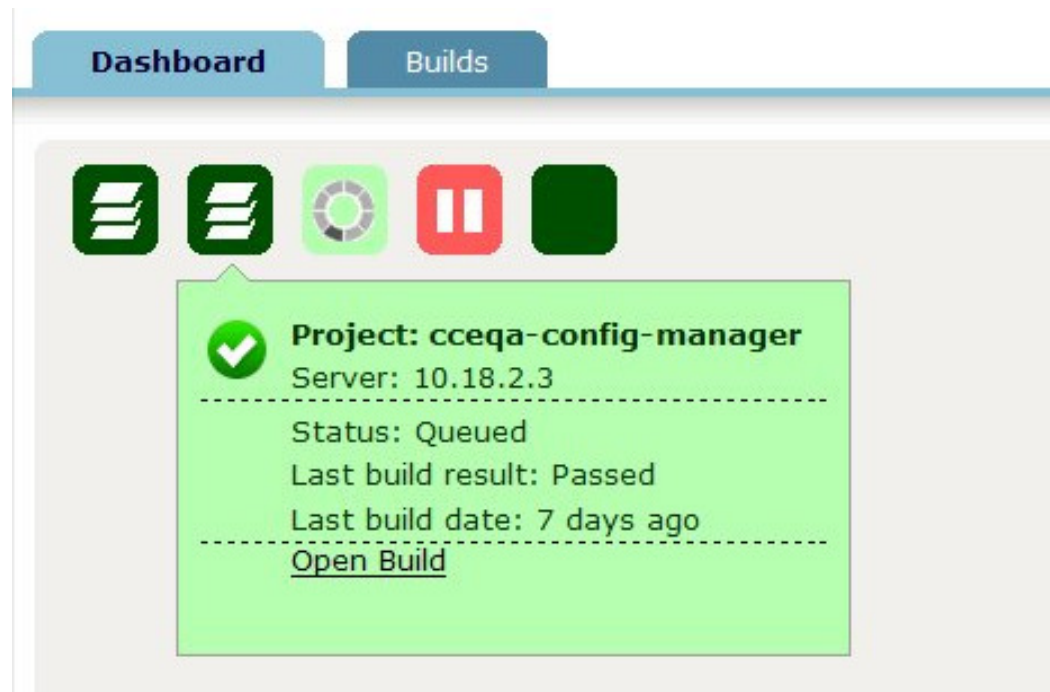
- COM support
- Regular expressions
- Directly call external DLL and Windows API functions
- Scriptable RunAs functions
- Compatible with Windows 2000 / XP / 2003 / Vista / 2008 / Windows 7 Unicode and x64 support
- Works with Windows Vista's User Account Control (UAC)

Case 4: Cruise Control

- Initially developed by employees of ThoughtWorks
- CruiseControl is a Java-based framework for a continuous build process
- It includes
 - plugins for email notification, Ant, and various source control tools.
 - A web interface is provided to view the details of the current and previous builds. It allows one to perform a continuous integration of any software development process.
- **Advantages**
 - Removes integration sessions
 - Minimizes number of integration bugs
 - Improves team work
 - Delivers latest best build product
 - Reduces the overall development cost by:
 - making it easier to find and fix problems
 - provides valuable and timely information, letting the development be managed more tightly.

Cruise Control

- Consists of two components:
 - Build loop (runs as a service/daemon)
 - Status Dashboard (runs as web application)
- Works with many version control systems (CVS, PVCS, Subversion, ClearCase, ...) Works with any build tool that produces parse-able output (Ant, Maven, ...)



Cruise Control Project Page

Build Results

Test Results

XML Log File

Metrics

Control Panel

BUILD FAILED

Ant Error Message: Return code is 1
Date of build: 11/12/2007 09:16:39
Time to build: 0 minute(s) 16 second(s)
Last changed: 11/09/2007 22:16:05
Last log entry: CDP-1029 CDP-2366 move isVirtualAsset information to

[Build Artifacts](#)

Initial Messages

[INFO] Scanning for projects...

[INFO] -----

[INFO] Building m-use Storefront V3

[INFO] task-segment: [clean, install]

[INFO] -----

clean:clean

[INFO] Deleting directory /home/sigi/work/3united/com.3united.content.plat.v3/plat.v3.core.frontend/target

[INFO] Deleting directory /home/sigi/work/3united/com.3united.content.plat.v3/plat.v3.core.frontend/target/classes

[INFO] Deleting directory /home/sigi/work/3united/com.3united.content.plat.v3/plat.v3.core.frontend/target/test-classes

[INFO] Deleting directory /home/sigi/work/3united/com.3united.content.plat.v3/plat.v3.core.frontend/target/site

dependency:unpack {execution: unpack_baseline}

[INFO] Configured Artifact: com.3united.content.plat.v3:plat.v3.core.backend:config-resources:8.0.23:zip

[INFO] Expanding: /home/sigi/.m2/repository/com/3united/content/plat/v3/plat.v3.core.backend/8.0.23/plat.v3.core

dependency:unpack {execution: unpack_frontend_resources}

[INFO] Configured Artifact: com.3united.content.plat.v3:plat.v3.core.backend:frontend-resources:8.0.23:zip

[INFO] Expanding: /home/sigi/.m2/repository/com/3united/content/plat/v3/plat.v3.core.backend/8.0.23/plat.v3.core
/home/sigi/work/3united/com.3united.content.plat.v3/plat.v3.core.frontend/src/main/webapp/WEB-INF/scripts

Cruise Control Change Logs

Modifications since last successful build: (54)

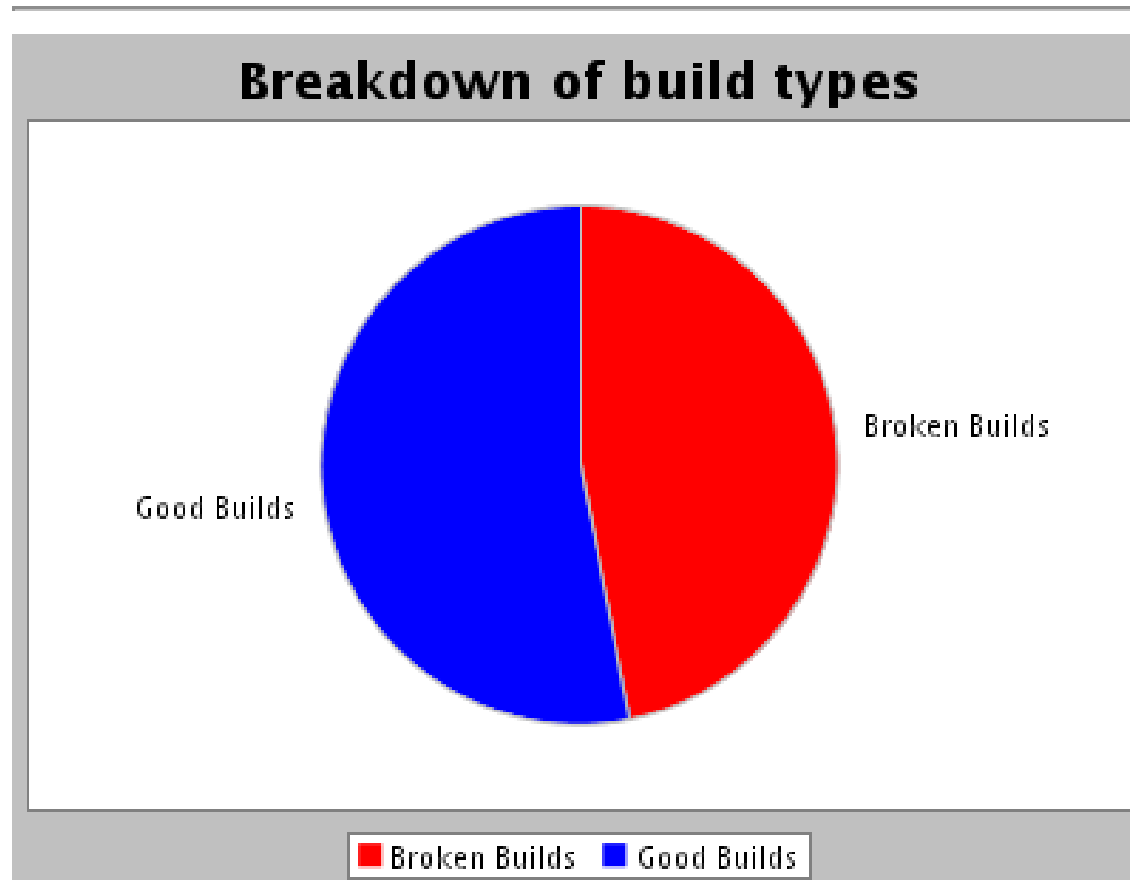
modified	mscharl	pom.xml	11/08/2007 16:24:22	[maven-release-plugin] prepare for next development iteration
modified	mscharl	pom.xml	11/08/2007 16:24:17	[maven-release-plugin] prepare release rosa-v3-xfire-server-8-0-3
modified	mscharl	pom.xml	11/08/2007 16:21:08	moved constants from ContentService to ContentConstants -> fixed tests
modified	mscharl	src/test/java/com/threeunited/content/rosa/v3/impl/ContentServiceTest.java	11/08/2007 16:21:08	moved constants from ContentService to ContentConstants -> fixed tests
modified	mscharl	src/test/java/com/threeunited/content/rosa/v3/impl/ExceptionHandlingTest.java	11/08/2007 16:21:08	moved constants from ContentService to ContentConstants -> fixed tests
modified	mscharl	src/test/java/com/threeunited/content/rosa/v3/impl/ImageServiceTest.java	11/08/2007 16:21:08	moved constants from ContentService to ContentConstants -> fixed tests
modified	mscharl	src/test/java/com/threeunited/content/rosa/v3/impl/PerformanceTest.java	11/08/2007 16:21:08	moved constants from ContentService to ContentConstants -> fixed tests

Cruise Control Build Statistics

Number of Build Attempts 111

Number of Broken Builds 52

Number of Successful Builds 59



And... Your own small time utilities

- Simple scripts in scripting languages like Perl and Python
 - XML comparator
 - File copier
 - Bulk search and replace
 - Email plugin
 -

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Contribute to open source

- Answer user queries
- Post problems
- Write blogs
- Post plugins and extensions

In Short, Active contribution to Open Source is needed to make it better

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Downsides of open source tools

- No support exists for open source software
- Frequent, untrack able and unscheduled releases
 - Many developments are going on at the same time it is hard to keep track of which version is the most up to date
- Might face backward compatibility issue
- Most open source software applications are not reliable

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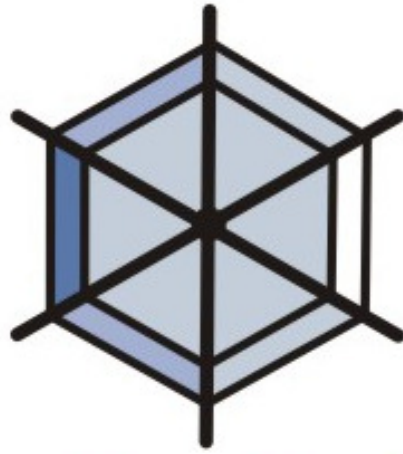
Tools stack

Tools expertise across SDLC

		Open Source / No Cost
Project Planning, Management & Tracking		VersionOne (Community Edition)
Project Initiation		Conference Calls
Requirement Specification		Twiki, VersionOne (Community Edition)
Design and Program Specification		StarUML, Google Apps
Development	IDE	Eclipse, NetBeans, FlexBuilder
	Code Reviews	Jupiter, ReviewBoard
	Static Code Analyzers	FindBugs, PMD, JSHint
	Unit Testing	J-unit, Easy Mock
	Performance Diagnostic Tool	App Dynamics Lite, Jmeter
	Front End Diagnostic Tools	Firebug, AjaxView

Tools expertise across SDLC

		Open Source / No Cost
QA	Functional Testing	Selenium, Autolt
	Defect Tracking	Bugzilla, Mantis
	Configuration & Source Control	Tortoise-SVN, CVS
	Mobile Testing (Android)	Robotium, RoboElectric, MonkeyRunner
	Memory Leaks	Eclipse Memory Analyzer
	Security	NetSparker (Community Edition)
	Load Testing	J-Meter, OpenSTA
Build & Release Management		Cruise Control, Hudson, Ant, Shell Scripts



Thank you

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