

SELENIUM – THE MAGIC OF TESTING

KICS-UET
2009

PRESENTED BY:
WASIF TANVEER

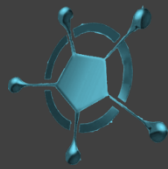


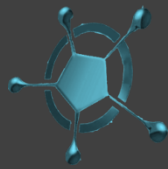
OSSW – ICOSST 2009,
Al-Khawarizmi Institute of Computer Science
University of Engineering and Technology, Lahore



Agenda

- What is Selenium
- Why Selenium
- Testing using record/playback and scripting tool
- Selenium Grid
- Benefits
- The Problem
- Conclusion





What is Selenium

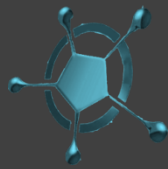
- Selenium is a chemical element with the atomic number 34,
- Represented by the chemical symbol Se.
- It is a nonmetal, chemically related to sulfur and tellurium, and rarely occurs in its elemental state in nature.



What is Selenium

(Cont'd)

- Selenium is a portable software testing framework for web applications
- Selenium is at present the most powerful Open Source Automation tool available. It is based on java scripting to a large extent.



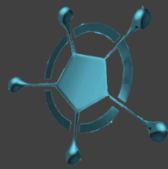
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What is Selenium

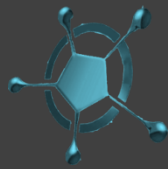
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- Selenium was developed by a team of programmers and testers at ThoughtWorks.
- Selenium is open source software, released under the Apache 2.0 license and can be downloaded and used without charge.



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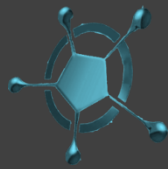
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What is Selenium

- It is more suited for the agile methodology of coding and testing
- A must have plug-in/tool for web development and QA
- Selenium can be deployed on Windows, Linux, and Macintosh
- Selenium is used for UAT (User Acceptance Test)

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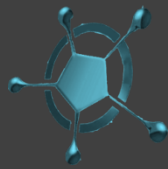
What is Selenium

- Selenium consists of following
 - Selenium IDE
 - Selenium Remote Control
 - Selenium Core
 - Selenium Grid



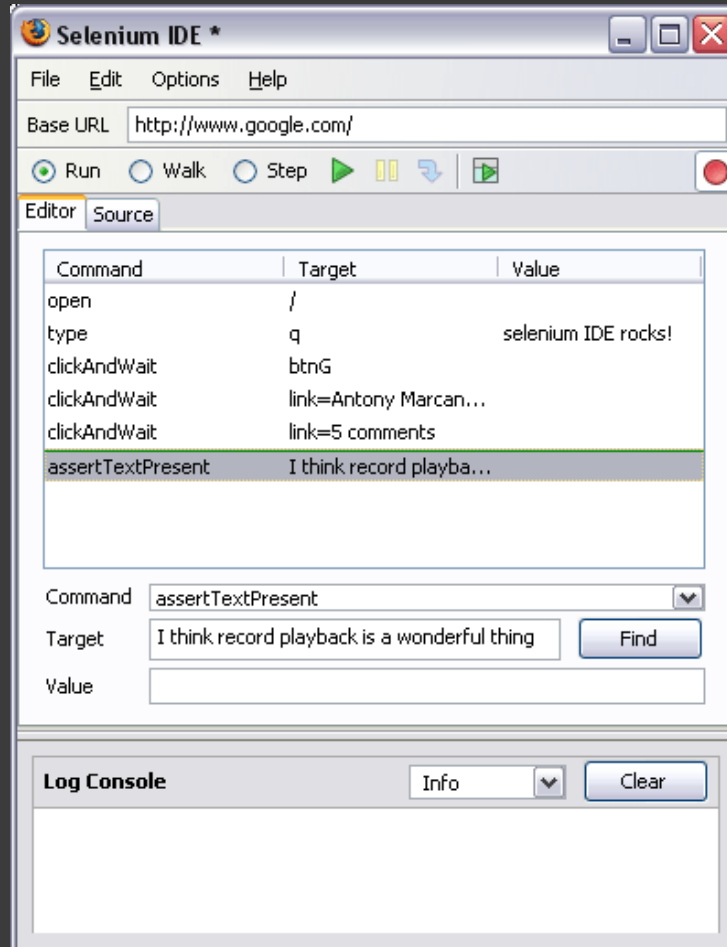
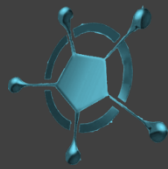
Selenium IDE

- **Selenium IDE** is an integrated development environment for Selenium tests
- It is implemented as a Firefox extension, and allows you to record, edit, and debug tests
- Selenium IDE includes the entire Selenium Core, allowing you to easily and quickly record and play back tests in the actual environment that they will run
- Selenium IDE is not only recording tool; **it is a complete IDE**



Selenium IDE

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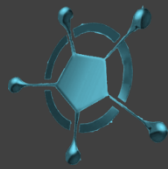


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Selenium IDE

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Features:

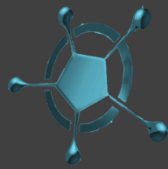
- Easy record and playback
- Intelligent field selection will use IDs, names, or XPath as needed
- Auto-complete for all common Selenium commands
- Walk through tests
- Debug and set breakpoints
- Save tests as HTML, Ruby scripts, or any other format
- Support for Selenium *user-extensions.js* file
- Option to automatically assert the title of every page

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Selenium Remote-Control

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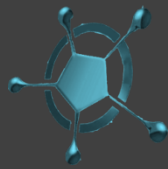


- **Selenium Remote Control (RC)** is a test tool that allows you to write automated web application
- For UI tests in any programming language against any HTTP website using any mainstream JavaScript-enabled browser

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Selenium Remote-Control (Cont'd)



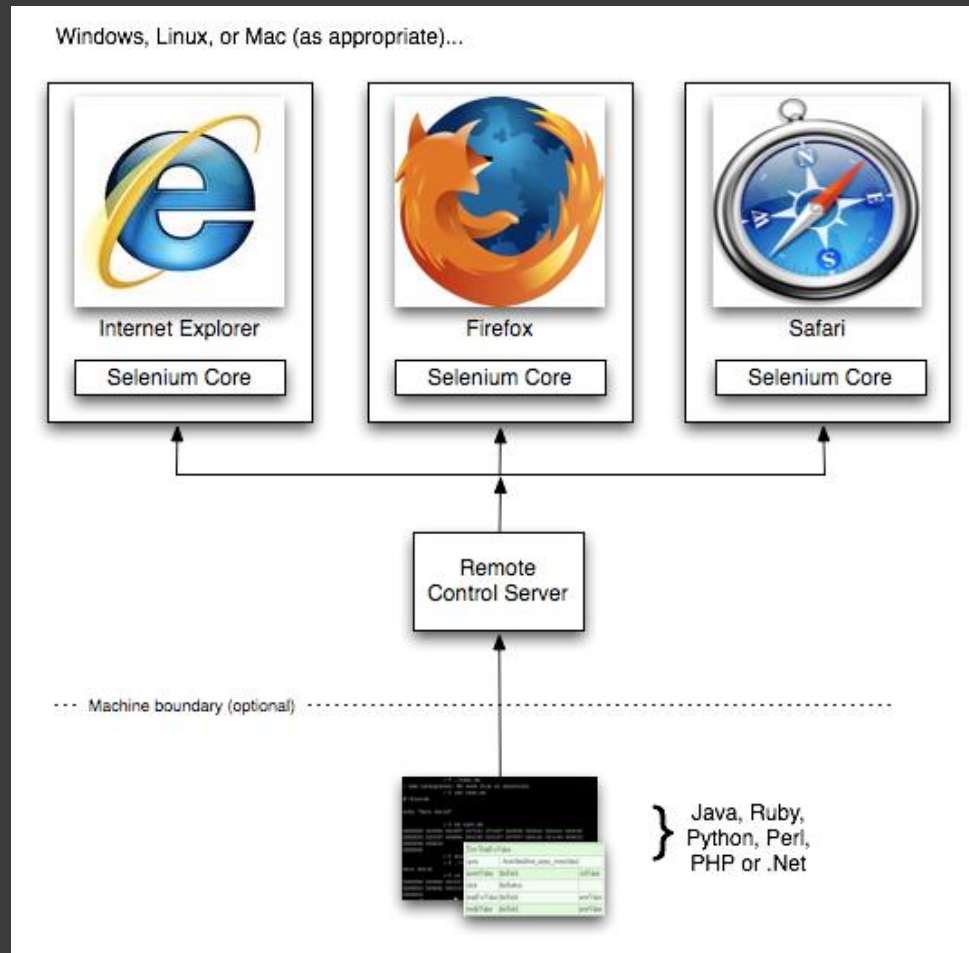
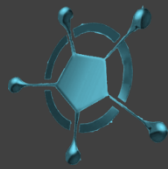
Selenium RC comes in two parts.

- A server which automatically launches and kills browsers, and acts as a HTTP proxy for web requests from them.
- Client libraries for your favorite computer language.



Selenium Remote-Control

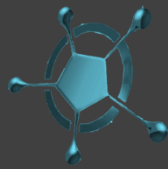
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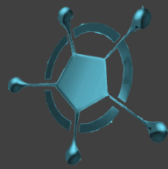
Selenium Remote-Control (Cont'd)



- Selenium Remote Control is great for testing complex AJAX-based web user interfaces under a Continuous Integration system. It is also an ideal solution for users of Selenium Core or Selenium IDE who want to write tests in a more expressive programming language than the Selenese HTML table format customarily used with Selenium Core.

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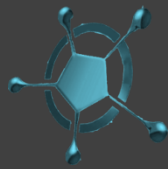




Why Selenium

- Helpful in continuous integration
- Easy to use
- Handy
- Can test complex interfaces
- Click record and playback testing
- Bundle of useful commands to be used in the IDE for testing
- Provides parallel testing facility (Grid)





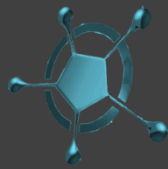
Why Selenium

(Cont'd)

- Browser Fidelity
- Beginner Friendly
- Support for Badly Formatted HTML Code
- Multi-Language Support (JAVA, C++, Pearl, Ruby, C#, Python, PHP etc)

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Why Selenium

(Cont'd)

Traffic Overview

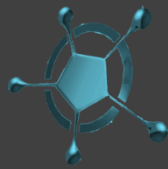
- Unique Visitors: 820K
- Visits: 1.6M
- Page views: 6.5M



Source: http://www.youtube.com/watch?v=EDb8yOM3Vpw&feature=player_embedded
<http://selenium-grid.seleniumhq.org/>

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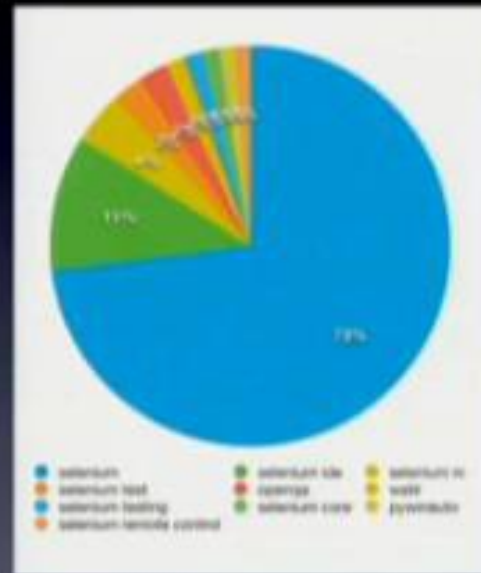


Why Selenium

(Cont'd)

Traffic Sources

- Direct traffic: 16%
- Referring sites: 40%
- Search engines: 44%
- Top 5 terms account for **92%**!



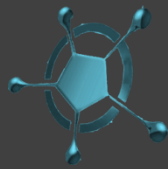
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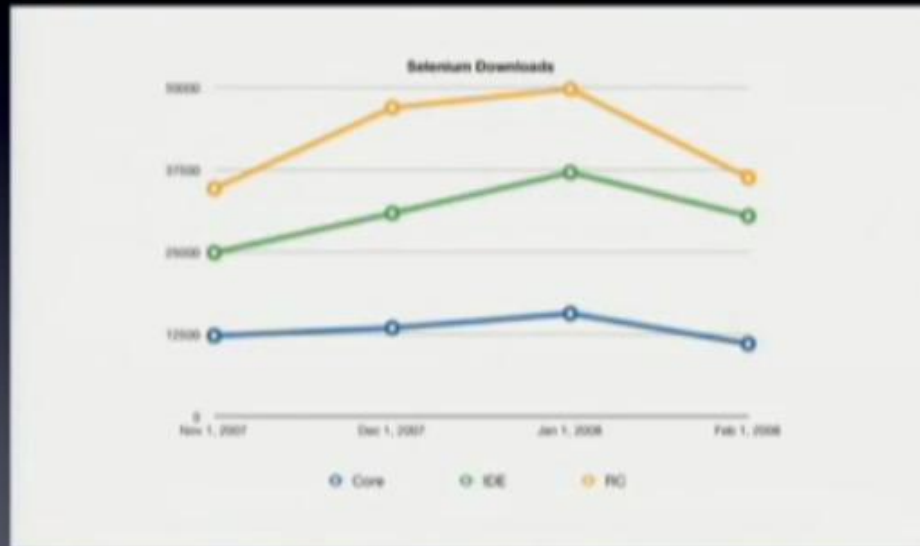


Why Selenium

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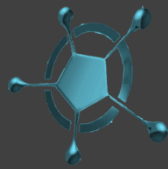
Project Downloads



Source: http://www.youtube.com/watch?v=EDb8yOM3Vpw&feature=player_embedded
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Why Selenium

(Cont'd)

Forums

- Total posts: 16,865 posts
- Selenium Core: 6,535
- Selenium RC: 5,906
- Selenium IDE: 4,337
- Selenium Grid: 87

Top Users	
	dfabulich (685)
	konstantin.getkey (350)
	shinya (300)
	alexq (275)
	plishtbo (200)
	banduwus (180)
	saroul (180)
	zeliko.filipin@... (155)
	dave.stewart (130)
	deadrunt (125)

Source: http://www.youtube.com/watch?v=EDb8yOM3Vpw&feature=player_embedded
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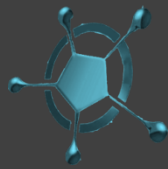
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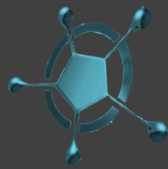
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- It has been adopted as the primary testing tool by Google.
- **Push to the limit testing**



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Why Selenium

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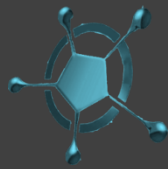
- ◎ Selenium vs different other tools
 - Easy to use
 - Easily extendable
 - Supports various languages
 - Record and Play
 - Good for test creation
 - Google supports using Selenium for acceptance testing
 - You can place Selenium test on large scale grids (Cool :P)

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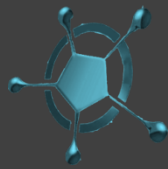
Selenium Grid

- Selenium Grid is a tool that dramatically **speeds up functional** testing of web-apps by leveraging your existing computing infrastructure.
- It allows you to easily run multiple tests in **parallel**, on **multiple machines**, in an heterogeneous environment.



Selenium Grid

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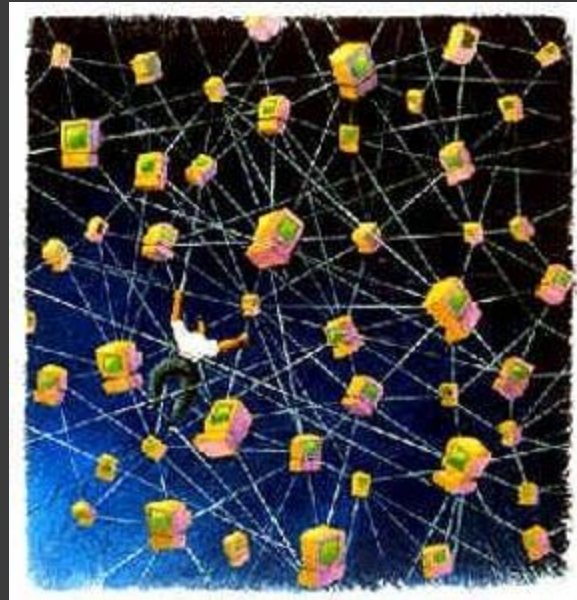
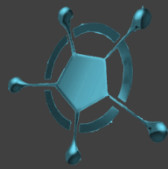
- The Selenium Grid provides a hub allowing the running of multiple Selenium tests concurrently on any number of local or remote systems, thus minimizing test execution time

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Selenium Grid

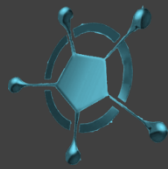
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Source: http://www.floridaventureblog.com/uploaded_images/grid.jpg

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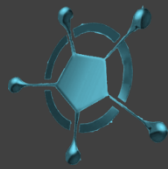




Why Selenium Grid

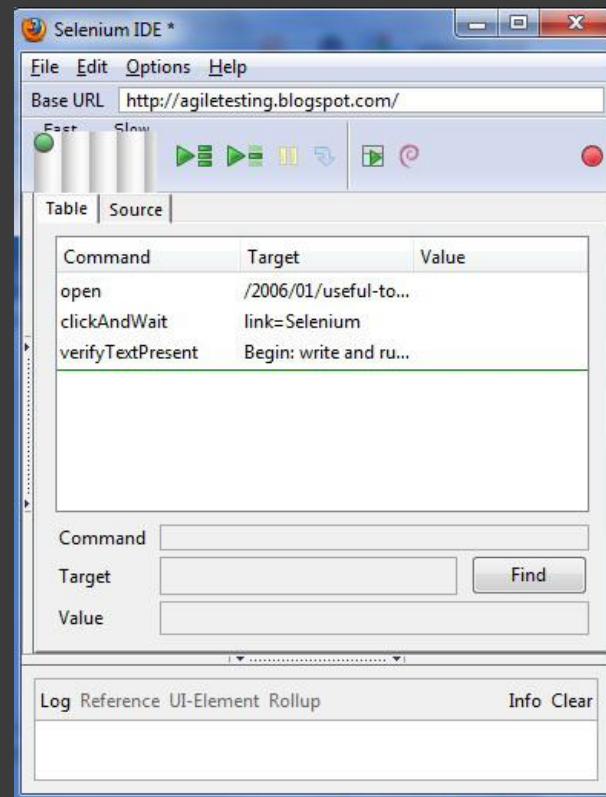
- **In-Browser Tests Are Slow**
- **Maintenance Costs Are The Real Challenge**
- **Prompt and Reliable Feedback is Crucial**
- **Hardware is Cheap**
- **So Do You Need Selenium Grid?**





Testing using record/playback and scripting tool

- Simple click and play test cases

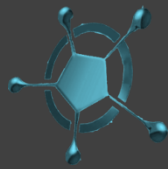


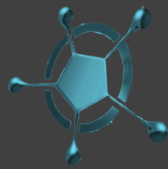
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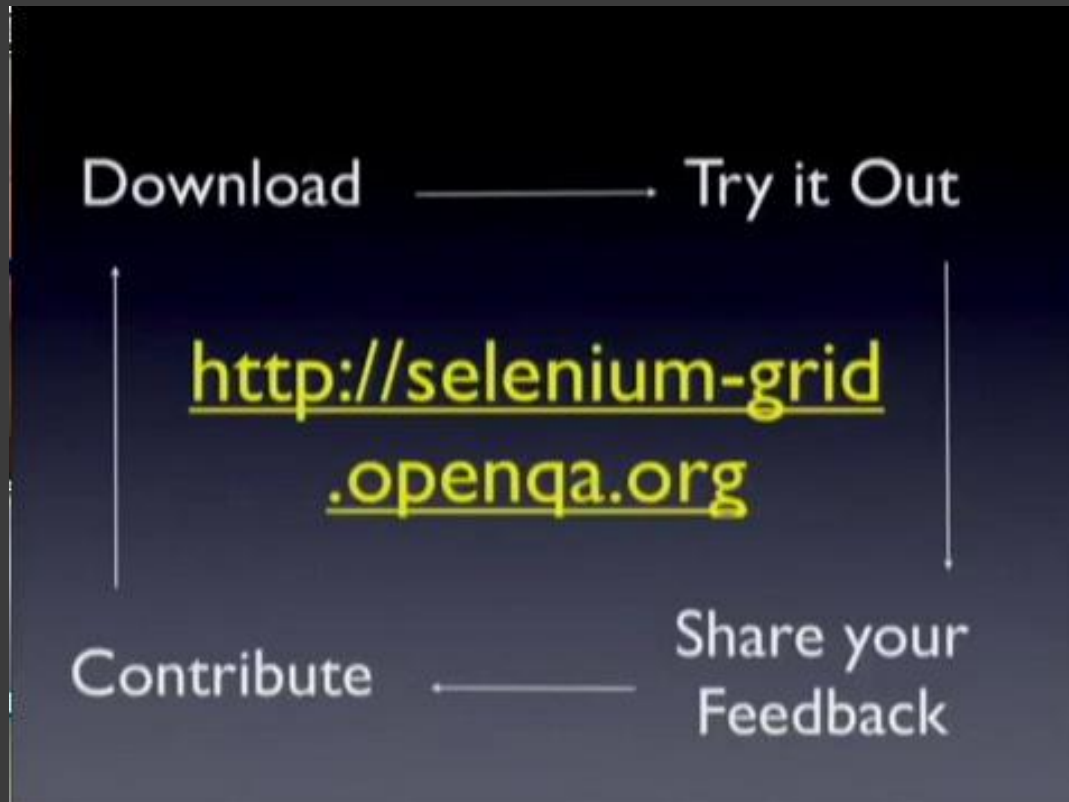
Some useful Tools for better Experience

- DOM Inspector
- X-Path Checker
- Firebug
- Venkman – JavaScript Debugger
- Web Developer
- Regular Expressions Tester
- HTML Validator
- XPather



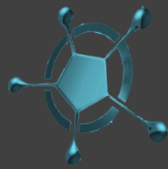


What to do after this...!!!



Source: http://www.youtube.com/watch?v=EDb8yOM3Vpw&feature=player_embedded
<http://selenium-grid.seleniumhq.org/>





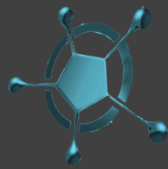
The Problem

- There are still 4% bug rate in the selenium testing
- Get better debugging facility
- Doesn't give more detail about the reason why the problem has occurred
- Some necessary options missing and still in wait to be integrated
- Still in the way of reaching the expected usage rate
- Detailed features like session-level(not server) configuration testing missing



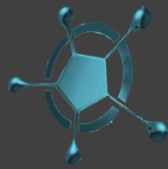
Solution

- Keep on removing bugs until they are only caused by user's not by Selenium's
- Should reduce their time to market
- Add support for configuration level testing (i.e. sessions etc)
- Users should continue to contribute to core, remote and IDE user level libraries
- Need to make RC more reliable



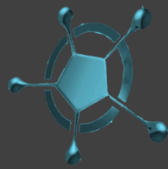
Conclusion

- Selenium more popular than ever
- Ecosystem thriving
- Renewed focus and energy



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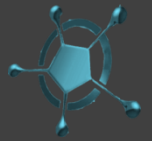


References and Where to Go

- Selenium
 - <http://seleniumhq.org/>
- Selenium Grid
 - <http://selenium-grid.openqa.org/>
- Forums
 - <http://openqa.org/>
- News and Contact
 - <http://ph7spot.com>



Q & A



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