

# Selenium 2

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Follow me on Twitter:

**@hugs**

# Get Library from PyPI

```
$ pip install -U selenium
```

# Agenda

- Overview of Selenium
  - Selenium IDE, Builder (new!), RC, Grid
- Why: Selenium 2
- What: Selenium 2
- Demos!

# What is Selenium?



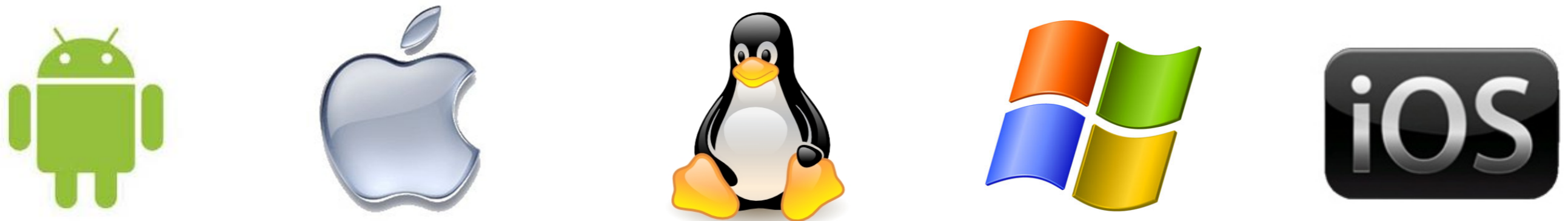
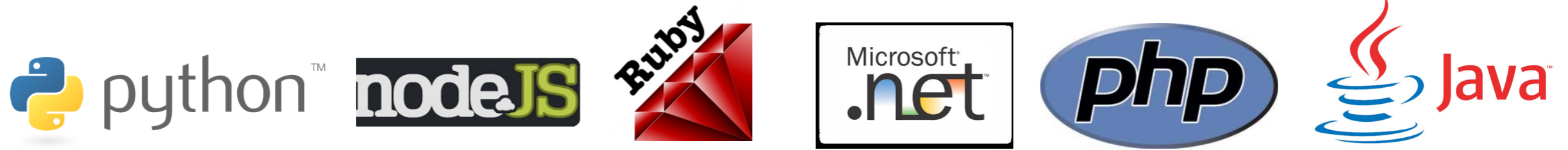
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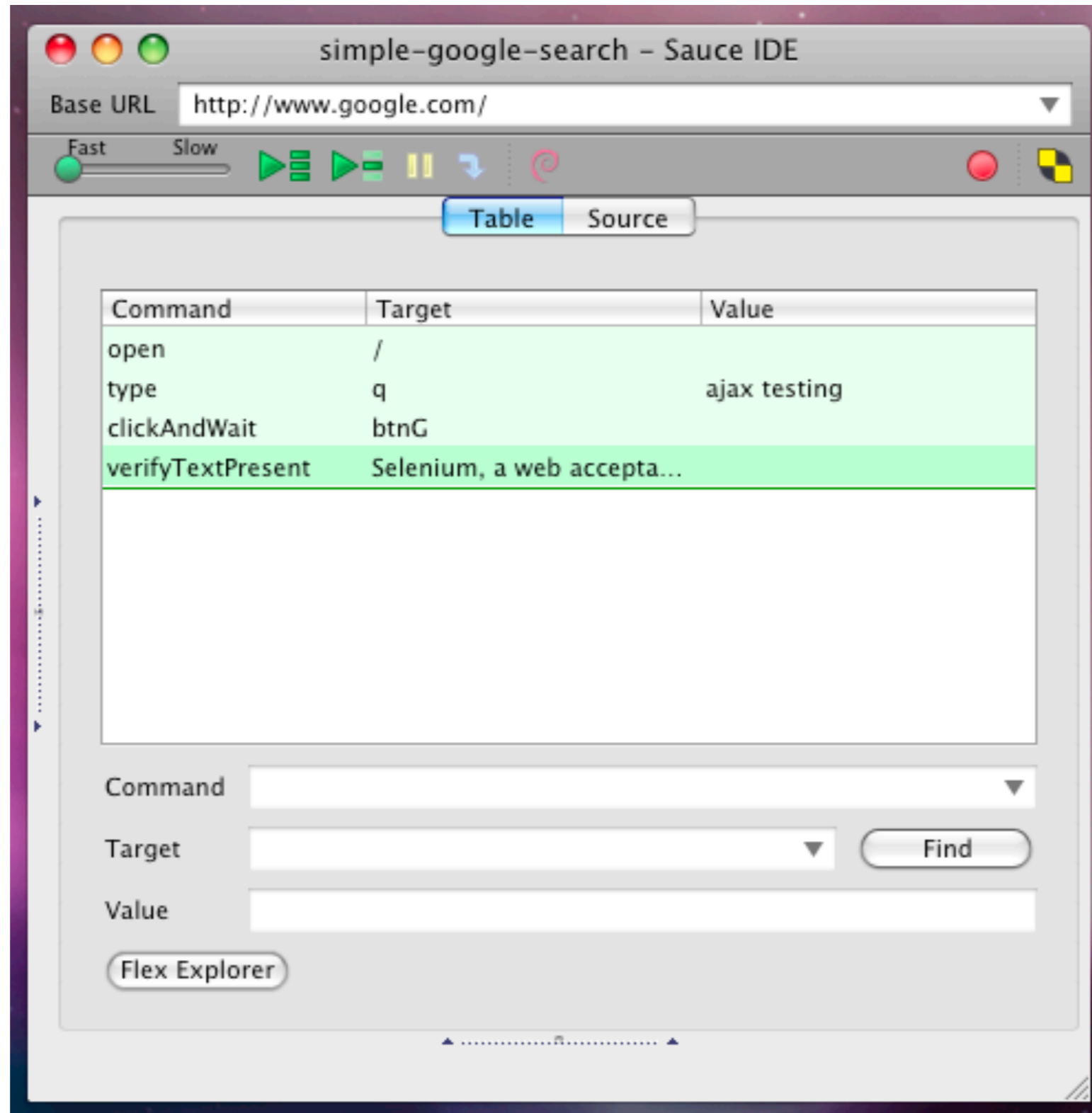
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# The Problem



# Selenium IDE for Firefox

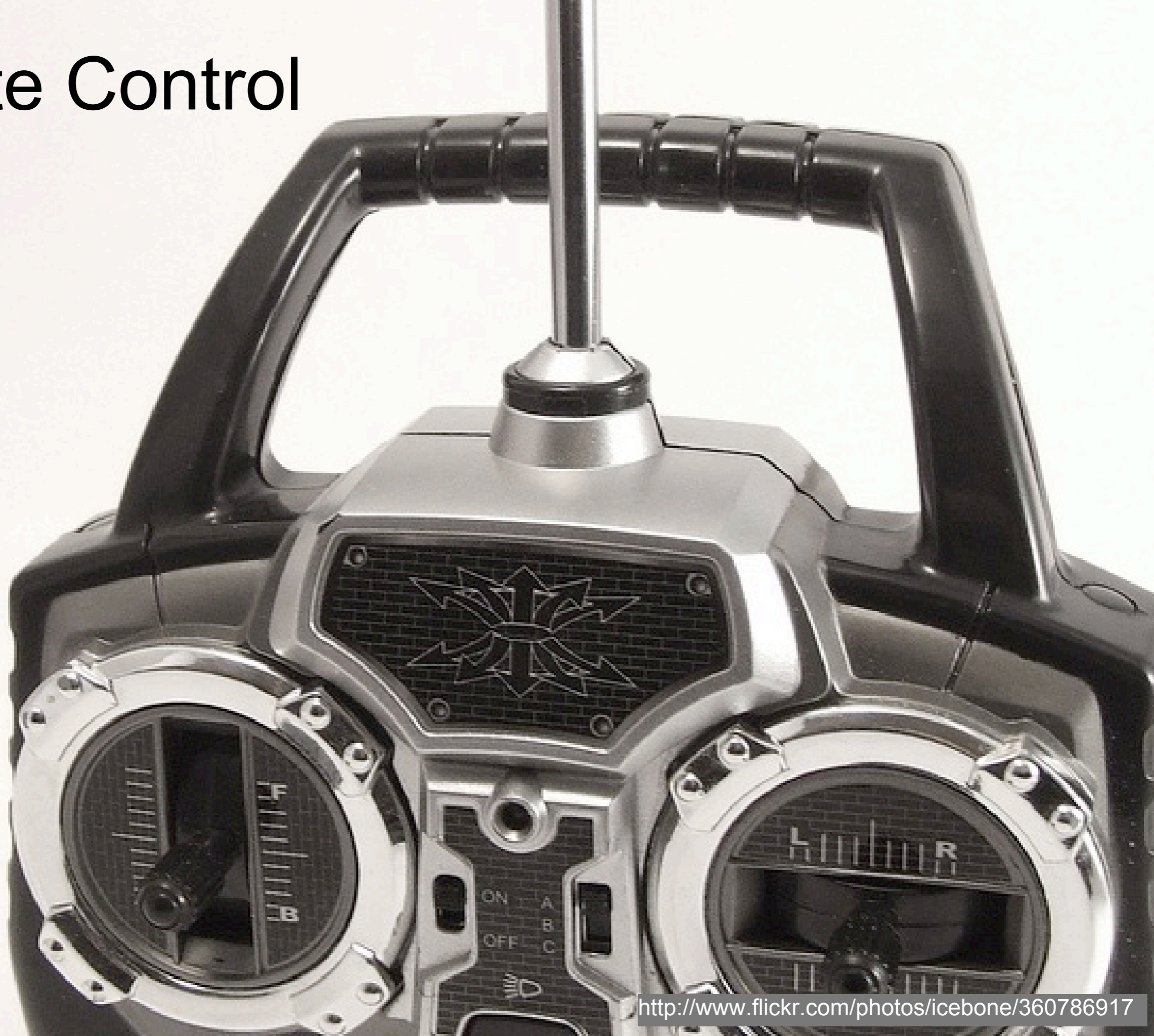


# Builder (new!)

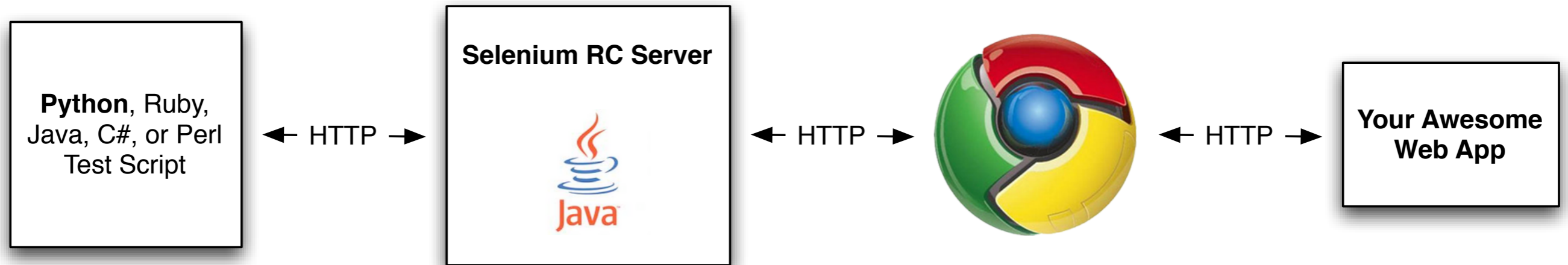




# Remote Control



# Selenium Remote Control



# Example Selenium RC Test - Java

```
package com.example.tests;

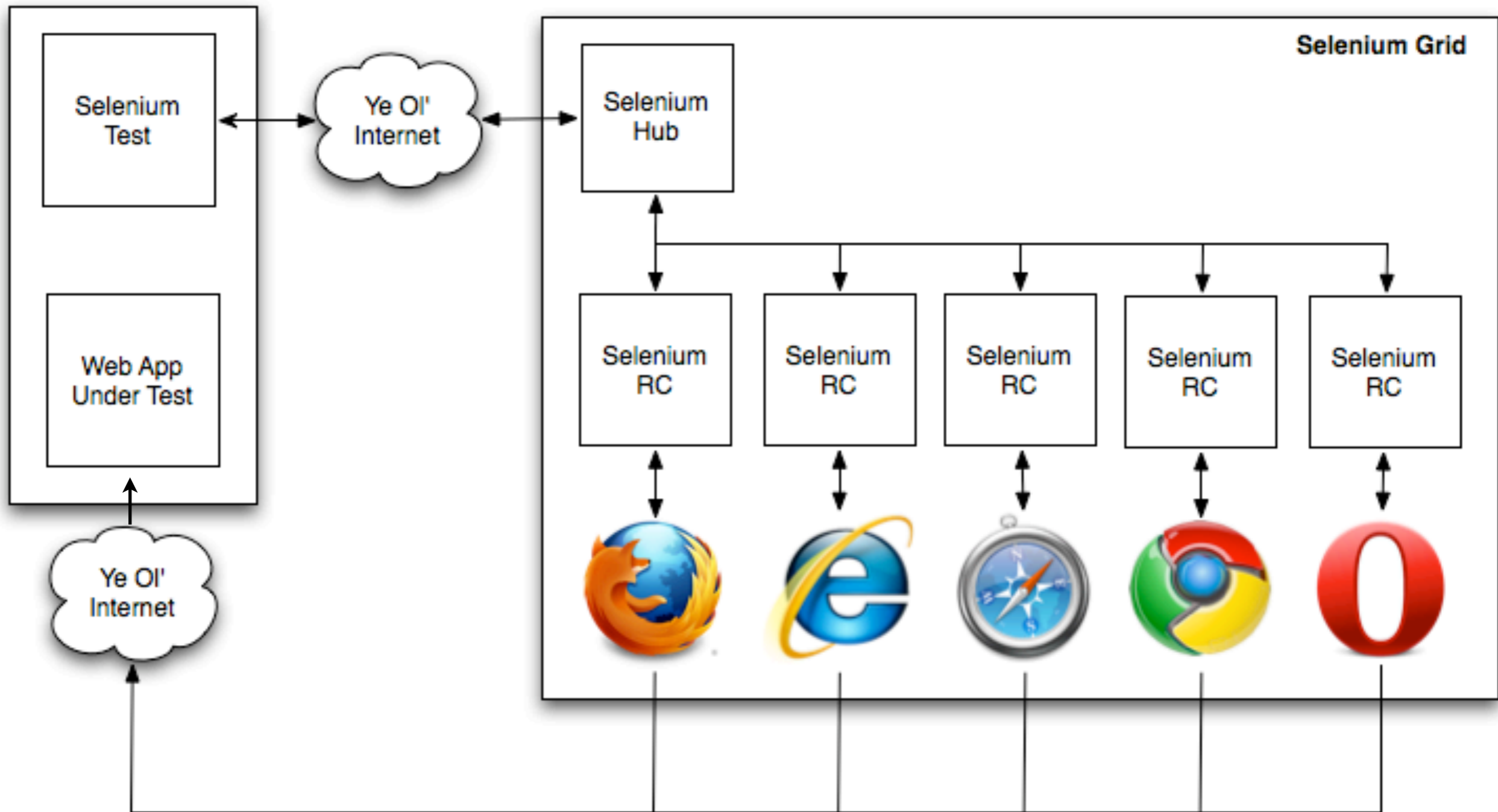
import com.thoughtworks.selenium.*;
import java.util.regex.Pattern;

public class simple-google-search extends SeleneseTestCase {
    public void setUp() throws Exception {
        setUp("http://www.google.com/", "*firefox");
    }
    public void test-simple-google-search() throws Exception {
        selenium.open("/");
        selenium.type("q", "ajax testing");
        selenium.click("btnG");
        selenium.waitForPageToLoad("30000");
        verifyTrue(selenium.isTextPresent("Selenium, a web acceptance testing tool"));
    }
}
```

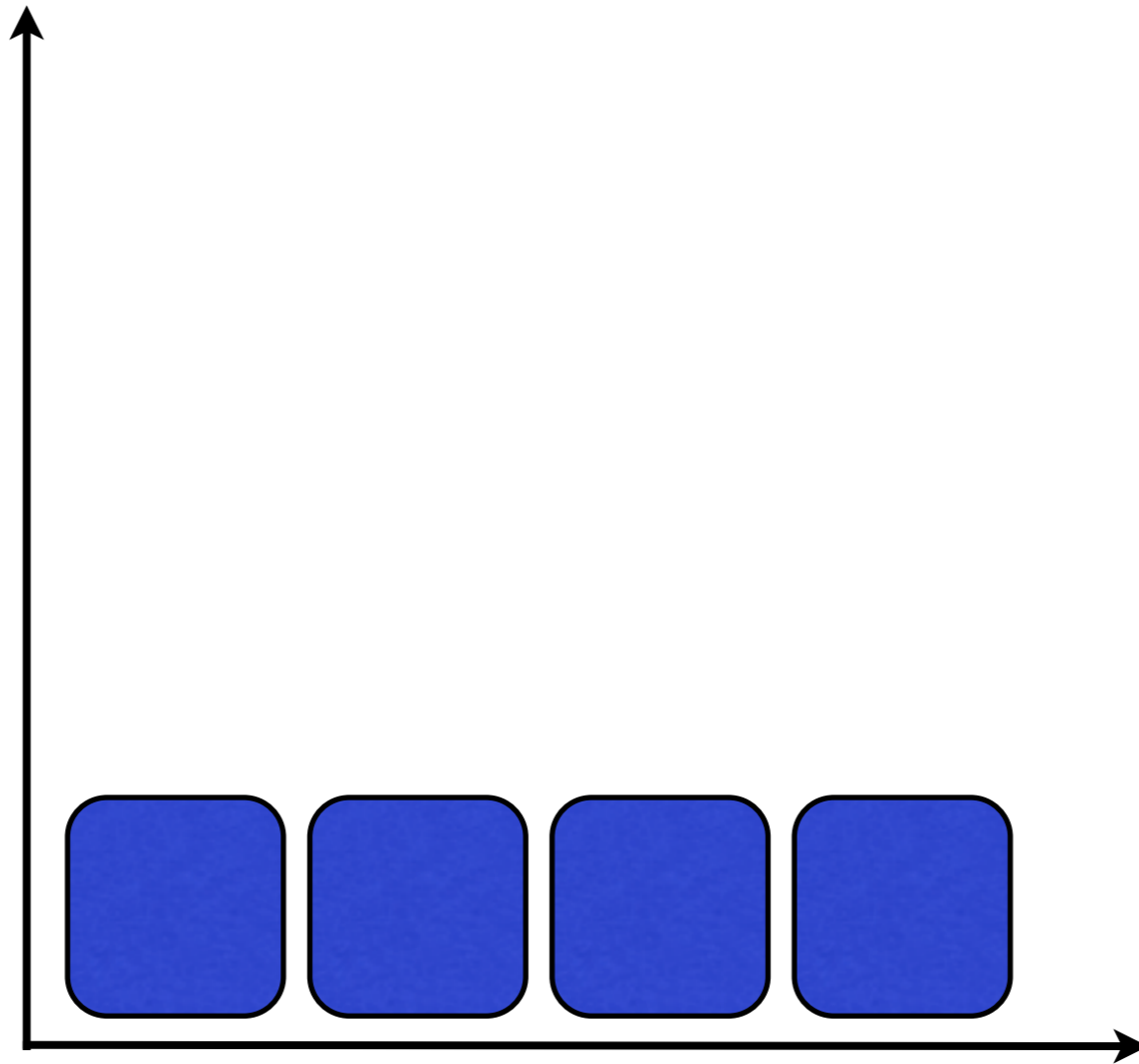
# Example Selenium RC Test - C#

```
[Test]
public void simpleGoogleSearchTest() {
    selenium.Open("/");
    selenium.Type("q", "ajax testing");
    selenium.Click("btnG");
    selenium.WaitForPageToLoad("30000");
    try {
        Assert.IsTrue(selenium.IsTextPresent("Selenium, a web acceptance testing tool"));
    } catch (AssertionException e) {
        verificationErrors.Append(e.Message);
    }
}
```

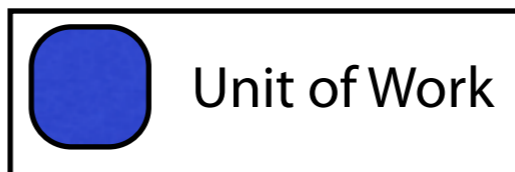
# Selenium Grid

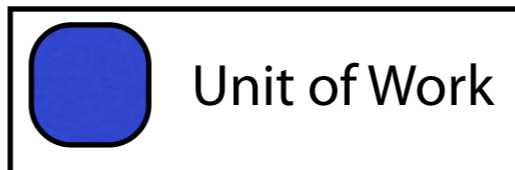
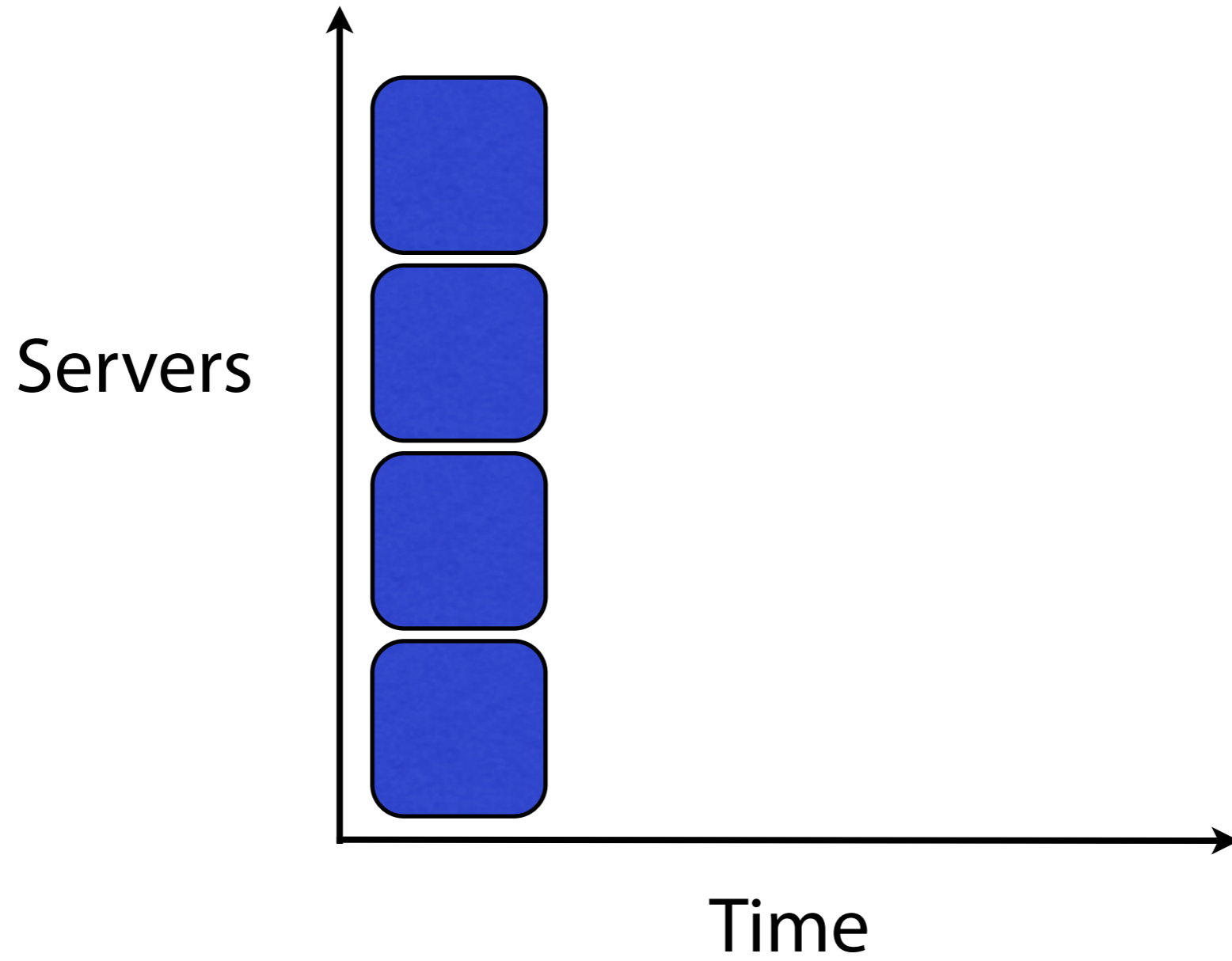


Servers



Time





# Selenium 2:

Why and What



# Mobile

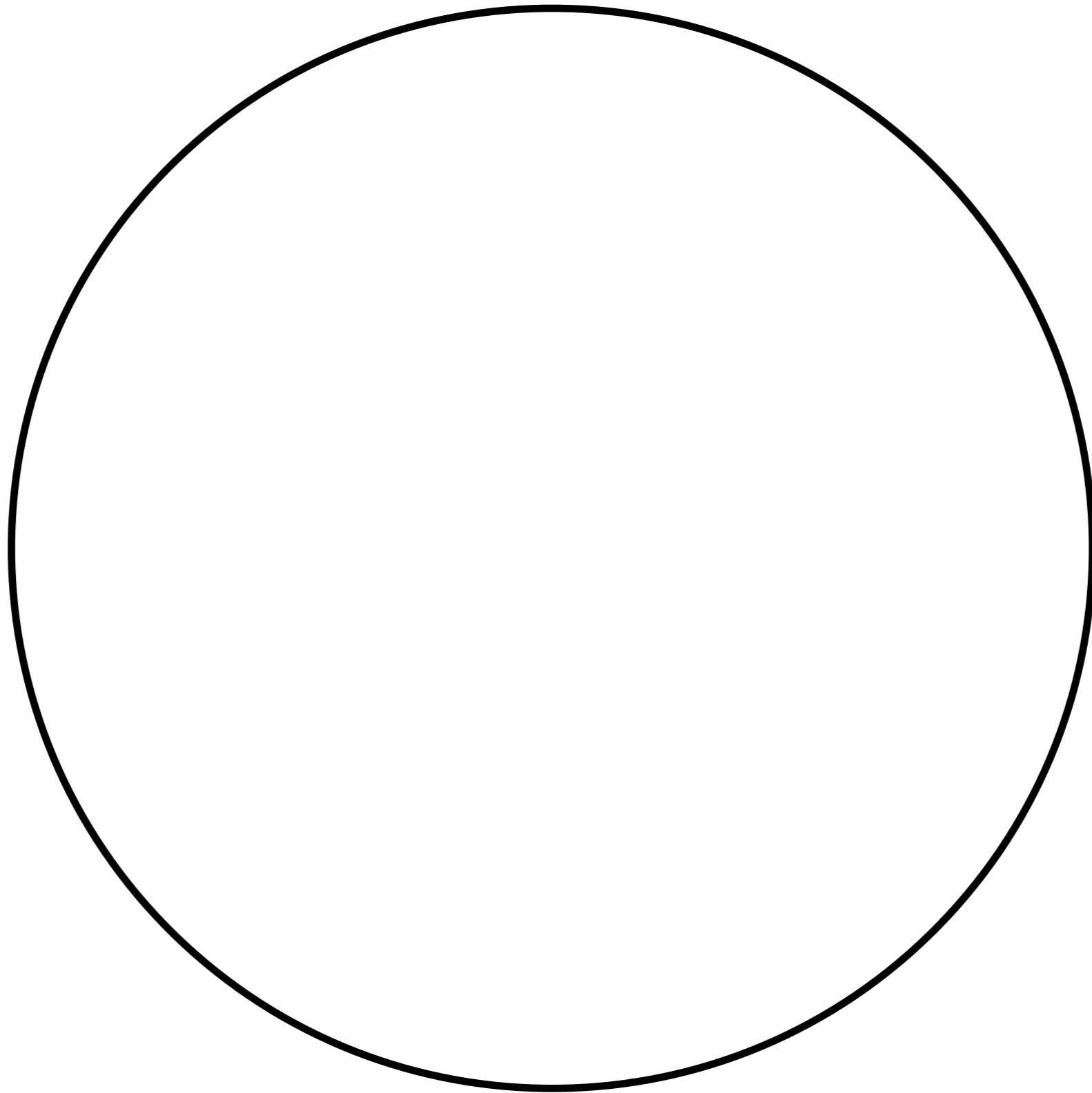


# Types of Mobile Testing

- Emulator
- Real device (tethered to workstation)
- Real device in a real location on a real network

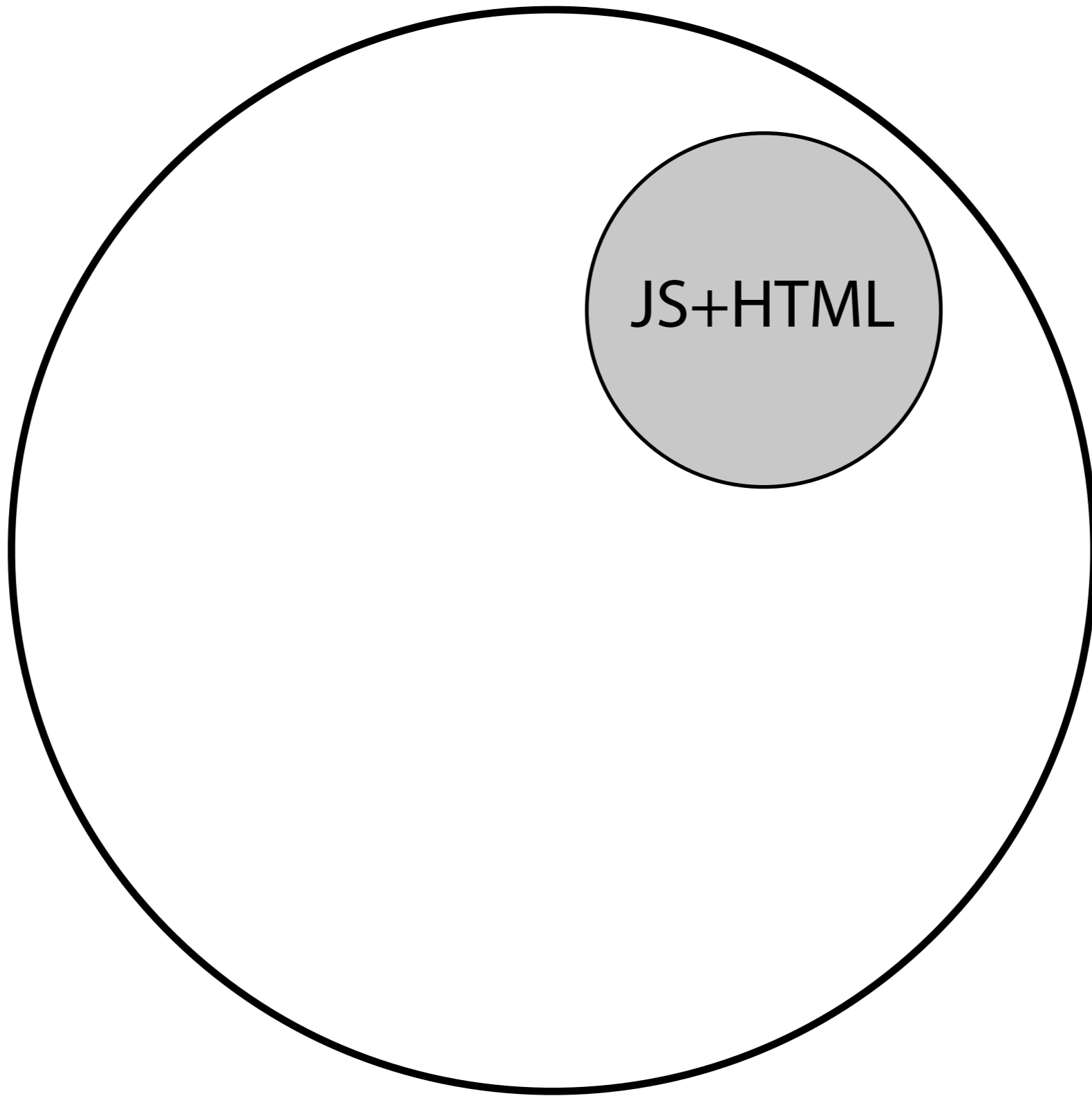
# Native vs Web

# Life before the Web



Total Application Market

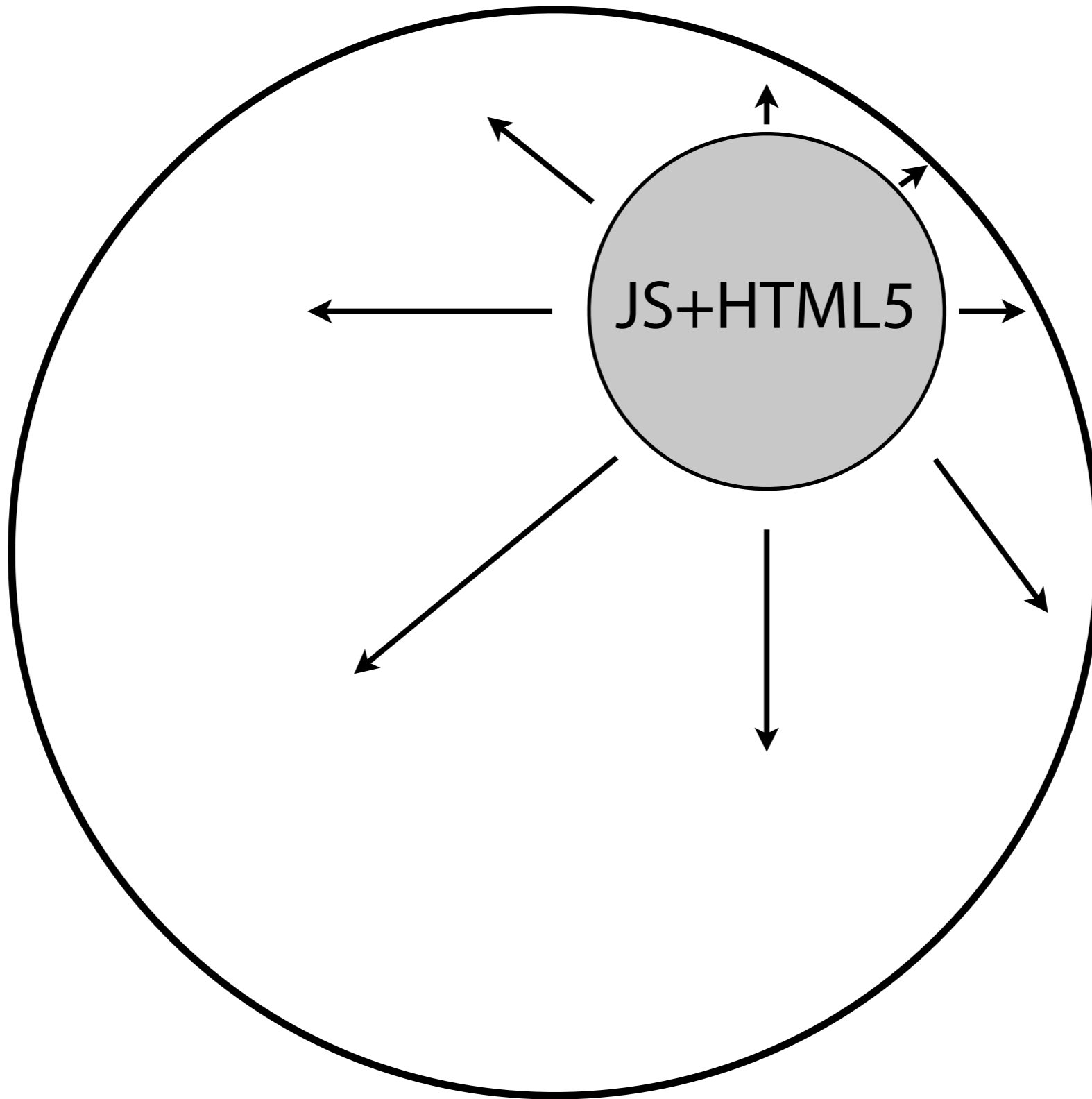
Yesterday



JS+HTML

Total Application Market

Today



Total Application Market

**Data?**





# Sencha



The image shows a screenshot of the Sencha website with three mobile devices overlaid. The website header includes the Sencha logo and a navigation menu with links for Home, Products, Support, Forum, Company, Blog, and Store. The main content area features the heading "Introducing Sencha Touch" and the subheading "The First HTML5 Mobile App Framework". Below this is a paragraph describing the framework's capabilities and a "Read our blog post" link. At the bottom of the main content area are three buttons: "Download Now", "Learn More »", and "View Examples »". The text "Sencha Touch 0.91 Public Beta" is visible at the bottom left. The three mobile devices are an iPhone, an iPad, and an Android phone, all displaying the Sencha Touch app interface. The app interface includes a "GeoCongress" header, a "CA District 14" sub-header, and a list of representatives: "Rep Eshoo, Anna G.", "Sen Boxer, Barbara", and "Sen Feinstein, Dianne".

Sencha - Introducing Sencha x

http://www.sencha.com/

Sencha

Home Products Support Forum Company Blog Store

## Introducing Sencha Touch

The First HTML5 Mobile App Framework

Sencha Touch allows your web apps to look and feel like native apps. Beautiful user interface components and rich data management, all powered by the latest HTML5 and CSS3 web standards and ready for Android and Apple iOS devices. Keep them web-based or wrap them for distribution on mobile app stores. [Read our blog post »](#)

[Download Now](#) [Learn More »](#) [View Examples »](#)

Sencha Touch 0.91 Public Beta

GeoCongress

CA District 14

Rep Eshoo, Anna G.


Sen Boxer, Barbara


Sen Feinstein, Dianne

# SproutCore

SproutCore Blog - The Next | X

← → ↻ 🏠 ☆ http://blog.sproutcore.com/post/756343010/the-next-revolution#disqus\_thread

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## SproutCore Blog

The Next Revolution

**July 1** **The Next Revolution**

Every so often a few technology trends converge that yield results much greater than their individual parts. I think we have reached one of those moments with mobile devices (like the iPad) and HTML5.

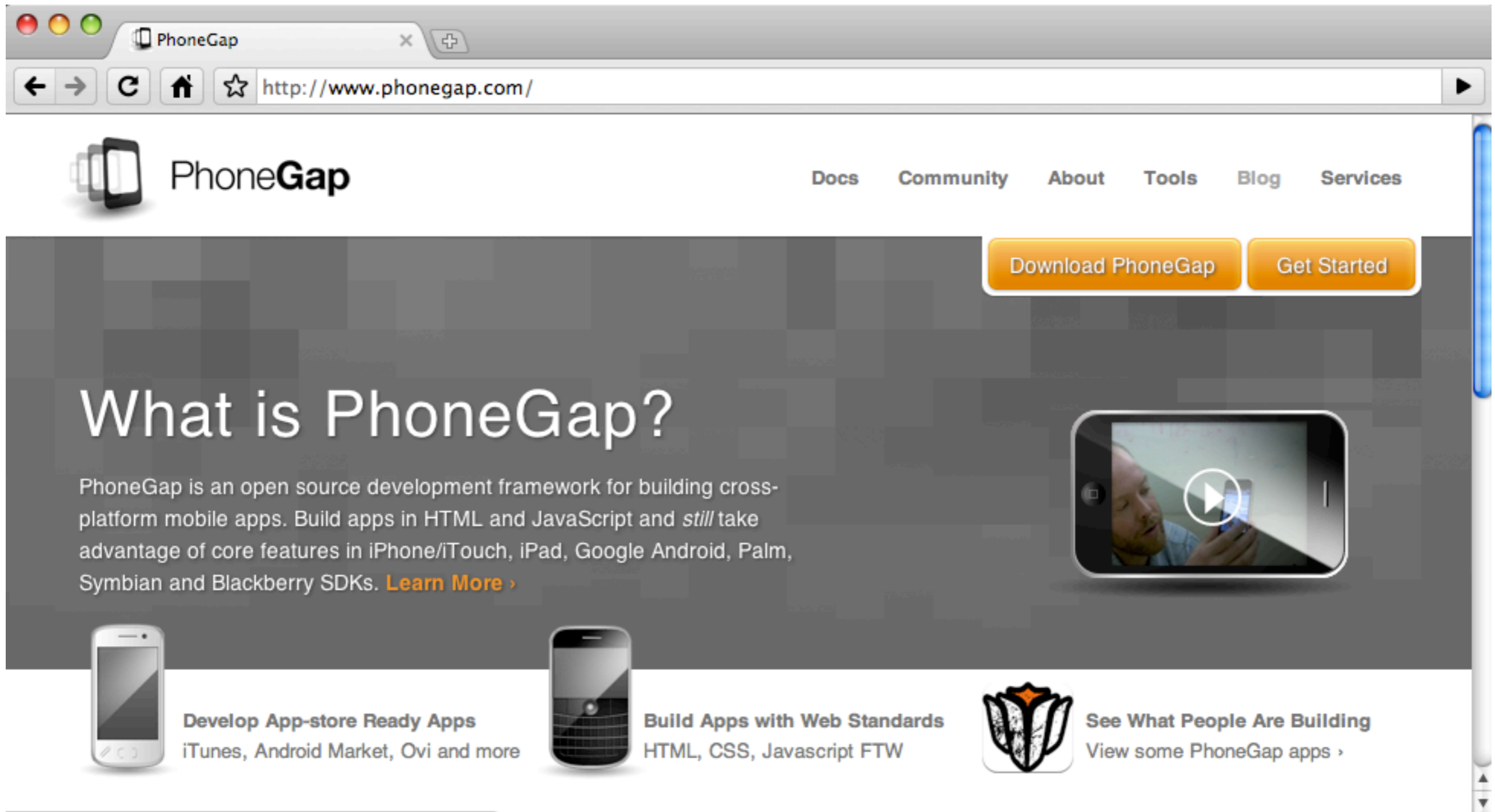
In many ways, the iPad is the perfect web device. It's a lean-back experience optimized around consuming content. With HTML5 (which mobile Safari does better than just about anything else), the kind of experience you can create on these devices is just really spectacular. You only need to use the [NPR demo](#) we wrote earlier this year for a few minutes to realize this is obviously the future of software.

For this reason I decided about a month ago to leave Apple and form a new company centered around helping companies bring great native-style app experiences to mobile device. The center of this company, of course, is SproutCore. Monday was my last day at Apple.

This change may seem big to some of you so i want to make a few things really clear up front:

First, SproutCore is now and will always be totally free and open source. I think this business of charging for a commercial license is not an effective way to grow a project. Sure you make a little cash, but at what expense to the community? My goal is to make SproutCore and all of the developer tools that surround it totally free to everyone. All I ask is that you participate in the community somehow to make things a little better for those who come after you.

# PhoneGap



The image shows a browser window displaying the PhoneGap website. The browser's address bar shows the URL <http://www.phonegap.com/>. The website header includes the PhoneGap logo and navigation links for Docs, Community, About, Tools, Blog, and Services. Two prominent orange buttons are labeled "Download PhoneGap" and "Get Started". The main content area features the heading "What is PhoneGap?" followed by a paragraph describing the framework as an open source development tool for building cross-platform mobile apps using HTML and JavaScript. A video player shows a person using a mobile device. At the bottom, three sections highlight key features: developing app-store ready apps, building apps with web standards, and viewing examples of built apps.


PhoneGap


Docs Community About Tools Blog Services


Download PhoneGap Get Started

## What is PhoneGap?

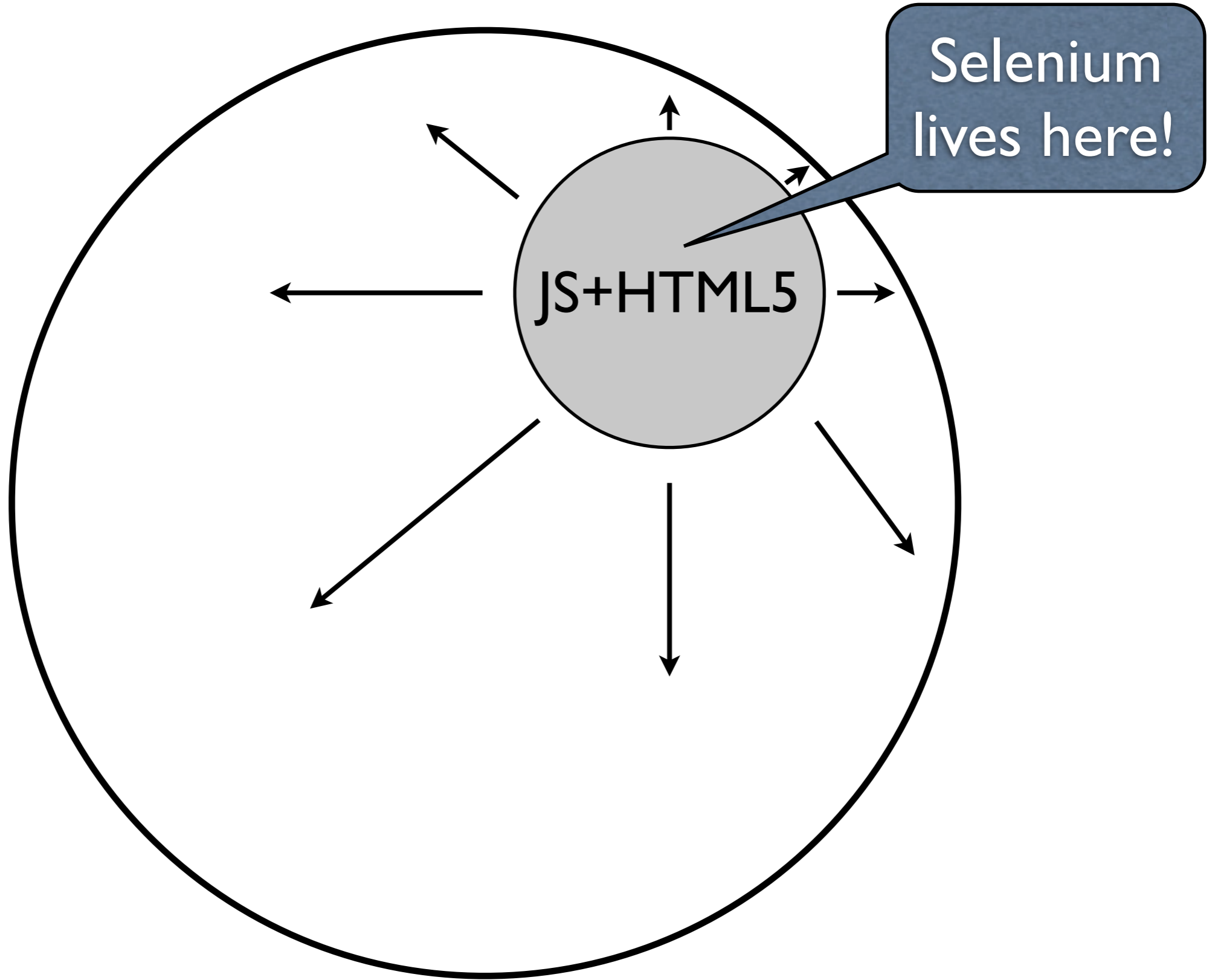
PhoneGap is an open source development framework for building cross-platform mobile apps. Build apps in HTML and JavaScript and *still* take advantage of core features in iPhone/iTouch, iPad, Google Android, Palm, Symbian and Blackberry SDKs. [Learn More >](#)

 **Develop App-store Ready Apps**  
iTunes, Android Market, Ovi and more

 **Build Apps with Web Standards**  
HTML, CSS, Javascript FTW

 **See What People Are Building**  
[View some PhoneGap apps >](#)

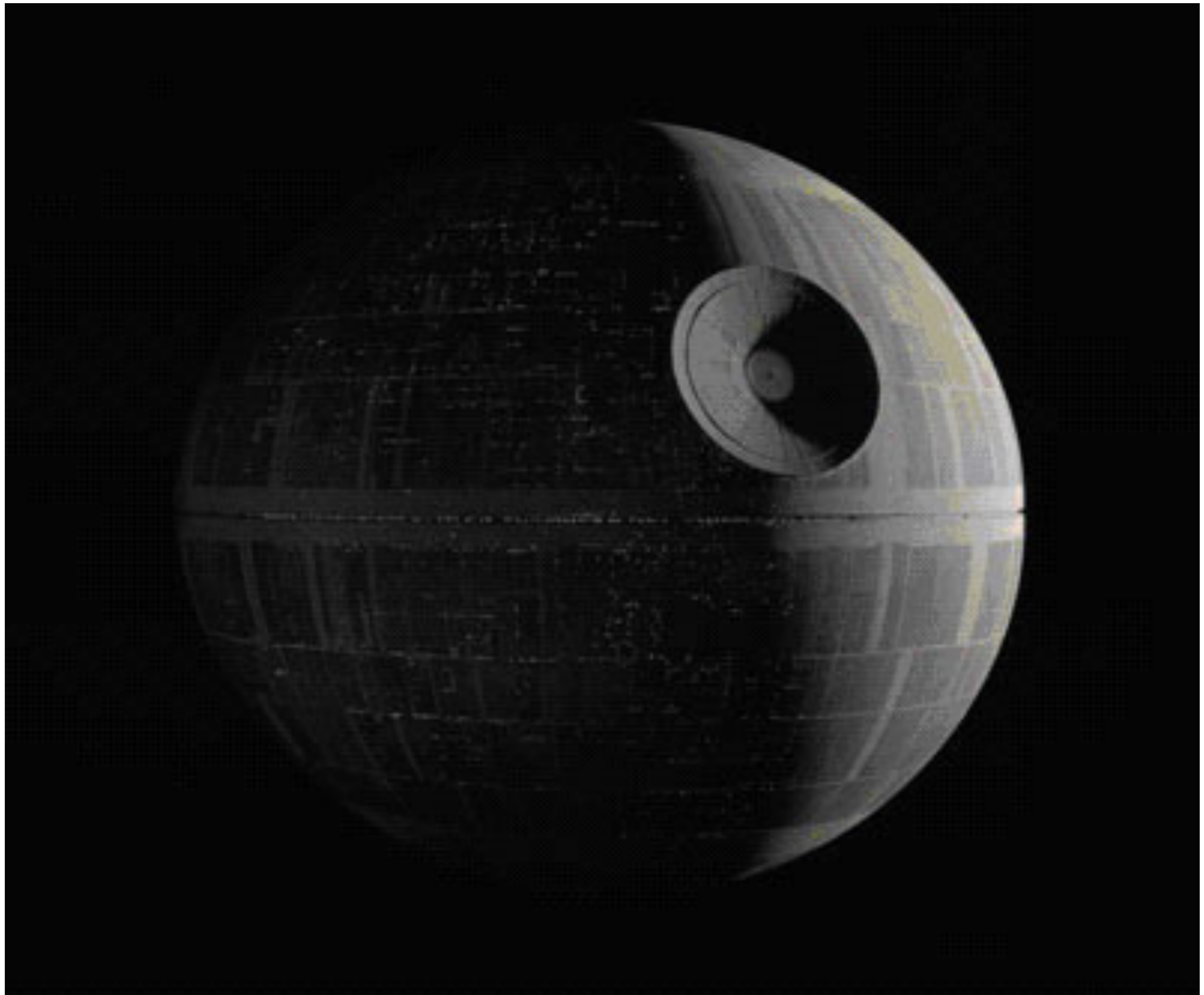
Today



Selenium  
lives here!

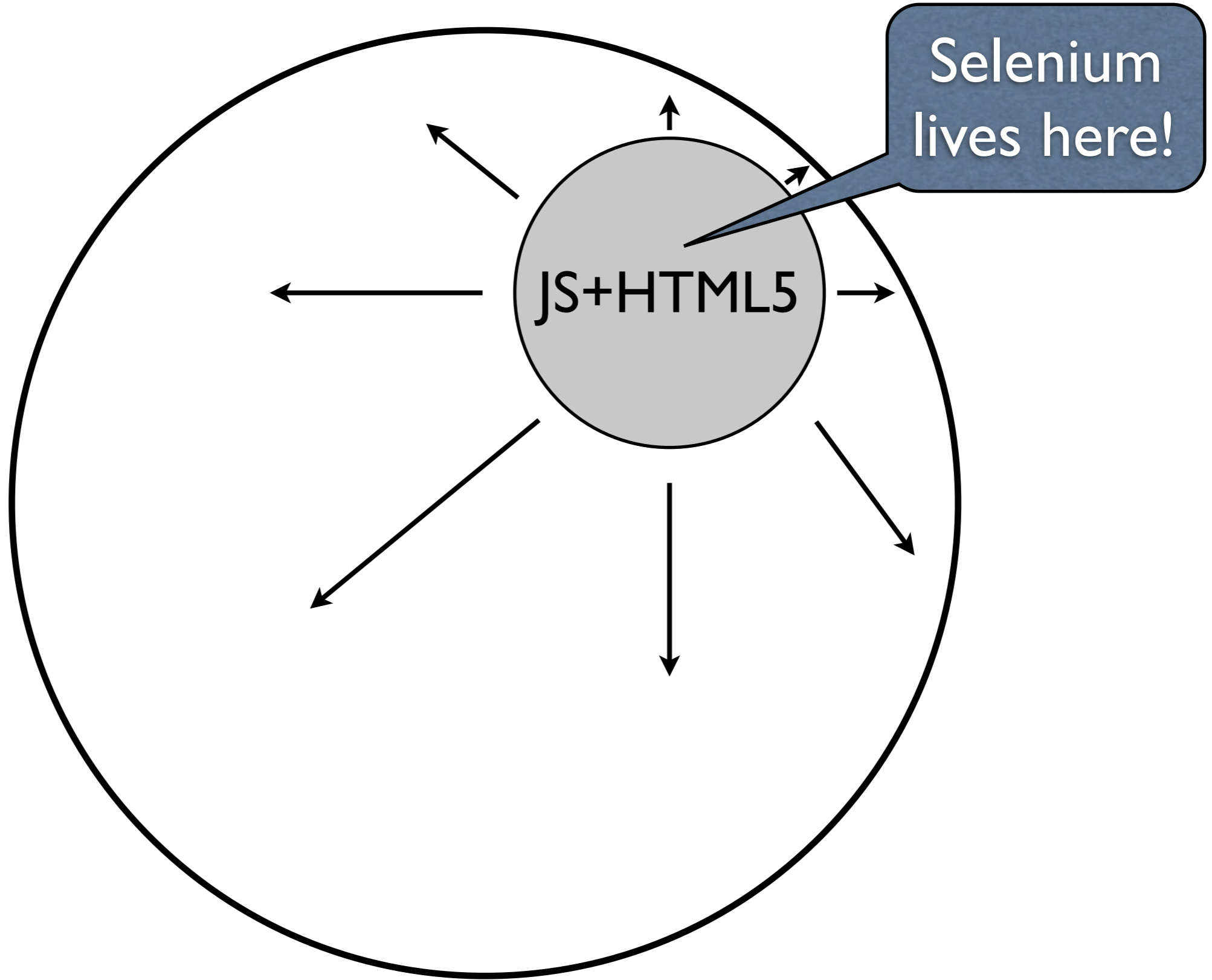
JS+HTML5

Total Application Market





Today

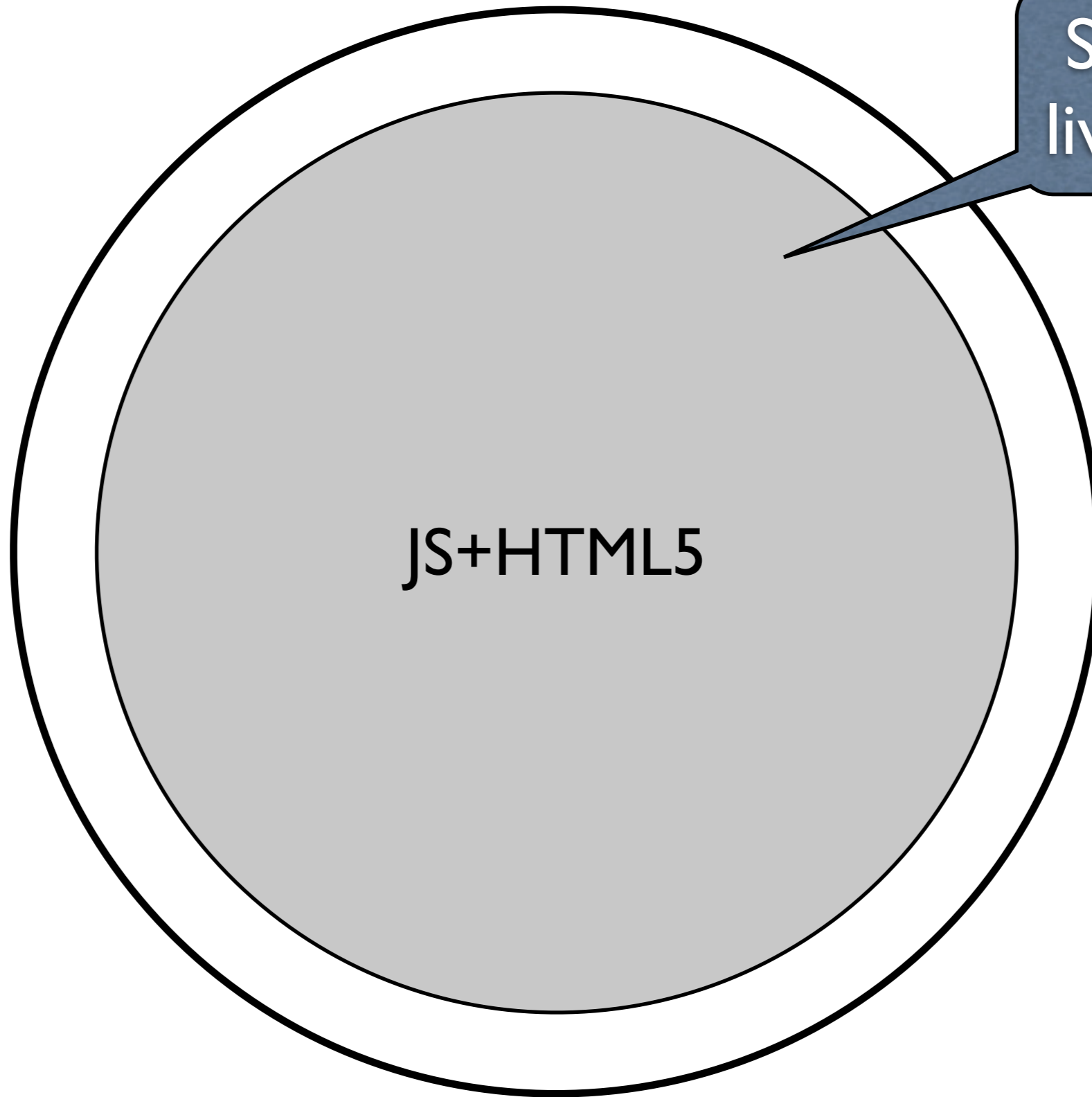


Selenium  
lives here!

JS+HTML5

Total Application Market

Tomorrow

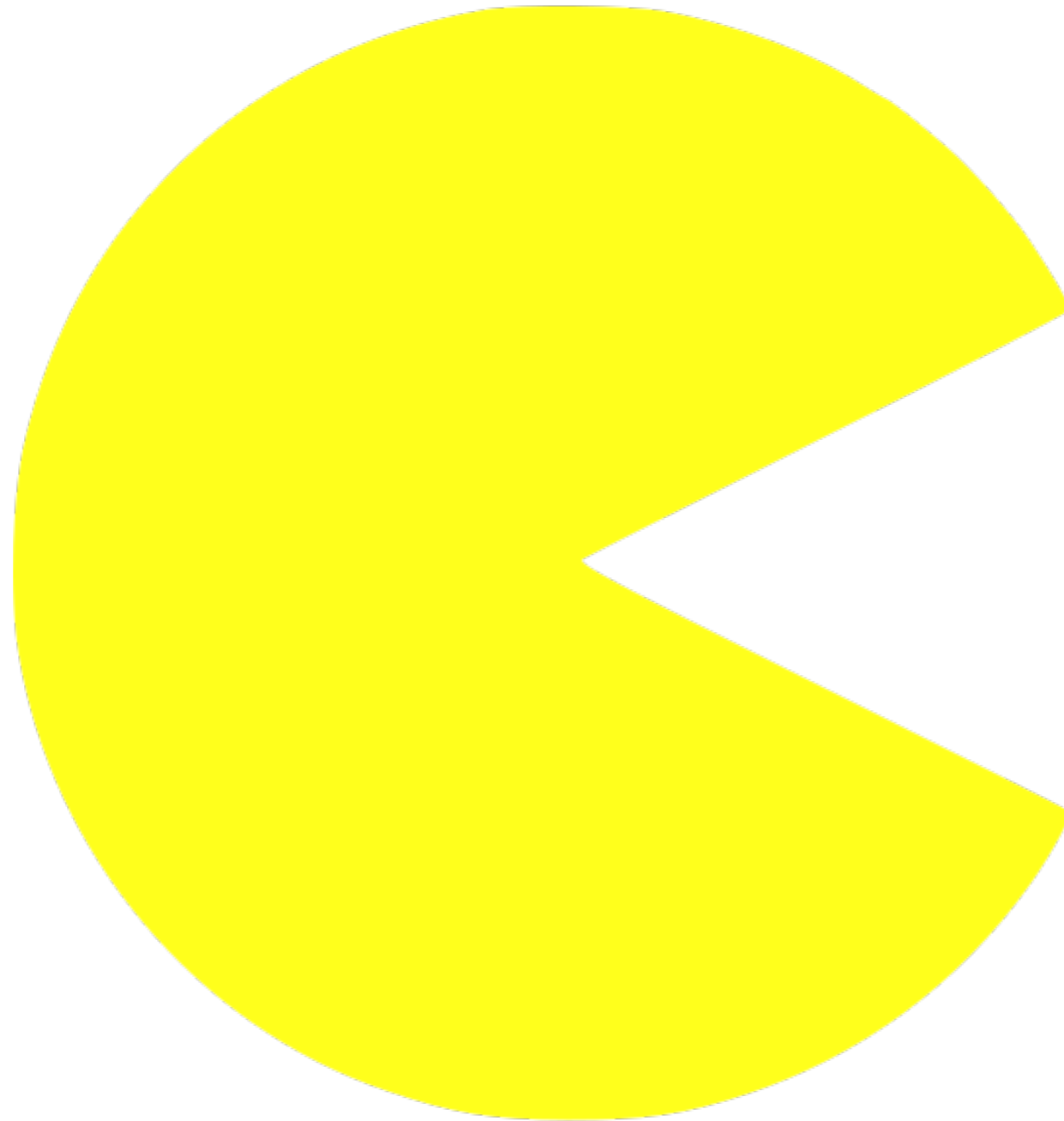


Selenium  
lives here!

JS+HTML5

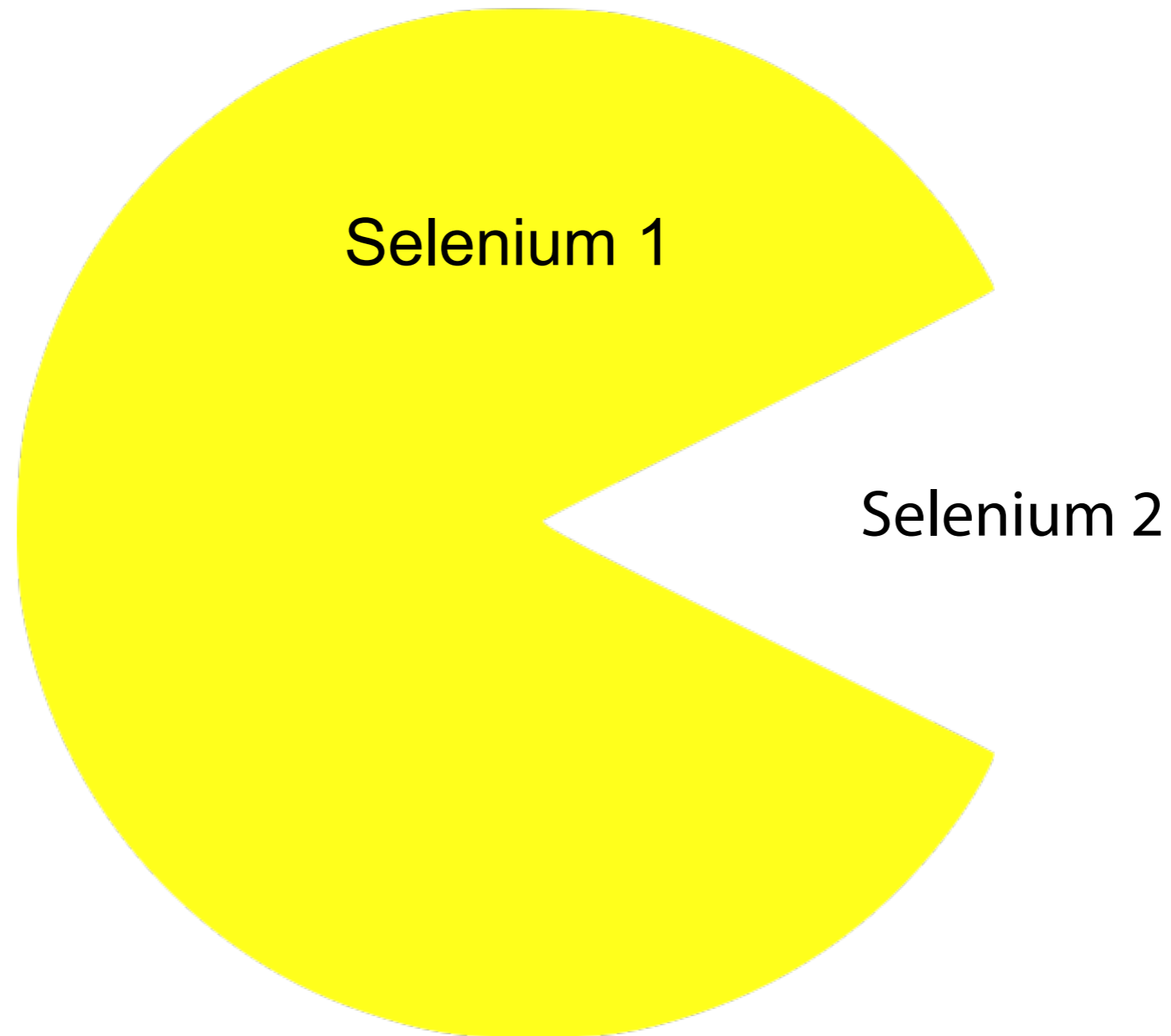
Total Application Market

# The Pareto Principle





# AKA (“The Pacman Problem”)



# Solving the last 20%

- Native keyboard & mouse events
- Same Origin Policy / XSS / HTTP(S)
- Pop-ups, dialogs
  - Basic Authentication
  - Self-signed certificates
  - File upload/download

```
from selenium import webdriver
browser = webdriver.Firefox()

browser.get('http://google.co.uk')

search_box = browser.find_element_by_name('q')
search_box.send_keys('spam spam spam\n')

assert "Monty Python" in browser.get_page_source()
```

# Cleaner API

- WebDriver Object

```
browser = webdriver.Firefox()
```

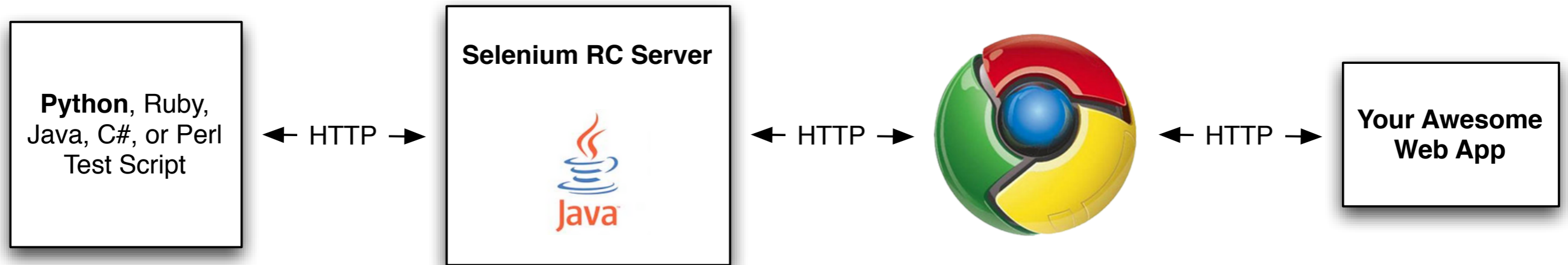
- WebElement Objects

```
search_box = browser.find_element_by_name('q')
```

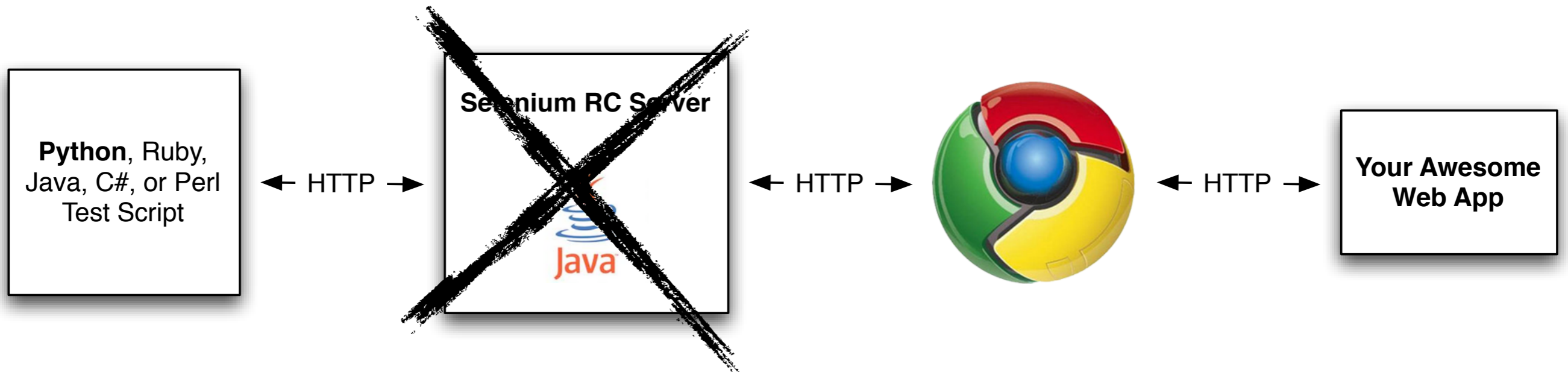
# Other Benefits

- Improved architecture
- Removing road-blocks, hacks, and workarounds
- Scales down (more developer friendly) experience

# Selenium Remote Control



# Selenium 2



**Python, Ruby,  
Java, C#, or Perl  
Test Script**

← HTTP →



← HTTP →

**Your Awesome  
Web App**



**Python, Ruby,  
Java, C#, or Perl  
Test Script**

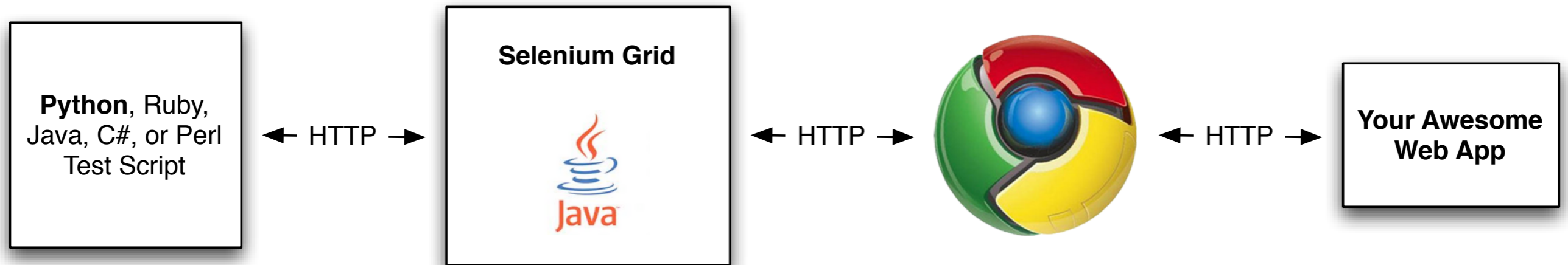
← C/C++ →



← HTTP →

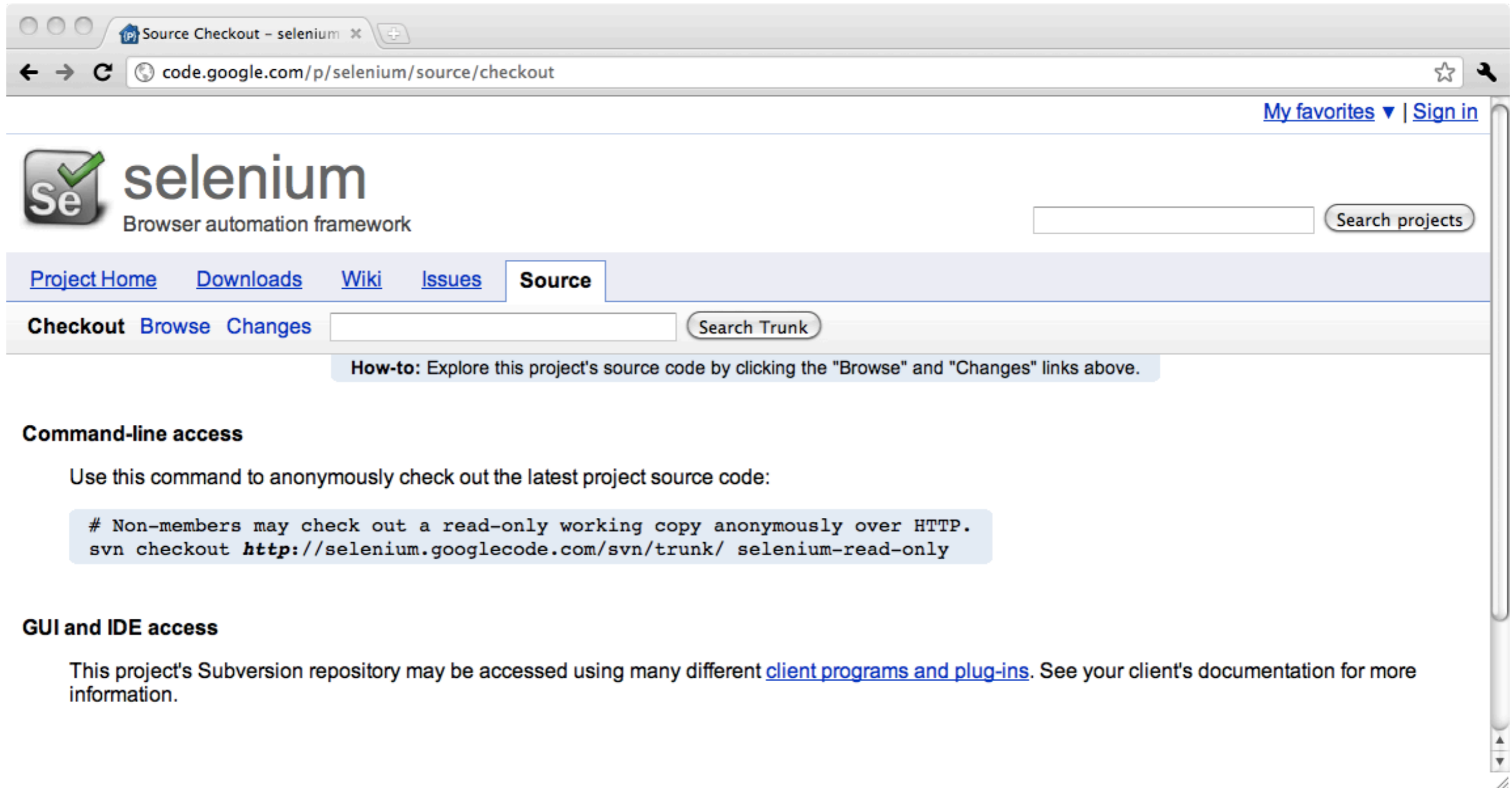
**Your Awesome  
Web App**

# Running a server is now optional!



**Mobile - How?**

# Checkout Selenium




The screenshot shows a web browser window with the address bar containing `code.google.com/p/selenium/source/checkout`. The page header includes the Selenium logo (a green checkmark over 'Se') and the text 'selenium Browser automation framework'. There are navigation links for 'Project Home', 'Downloads', 'Wiki', 'Issues', and 'Source'. Below these are links for 'Checkout', 'Browse', and 'Changes', along with a 'Search Trunk' button. A blue callout box contains the text: 'How-to: Explore this project's source code by clicking the "Browse" and "Changes" links above.' The main content area has a section titled 'Command-line access' with the instruction: 'Use this command to anonymously check out the latest project source code:' followed by a code block: `# Non-members may check out a read-only working copy anonymously over HTTP.  
svn checkout http://selenium.googlecode.com/svn/trunk/ selenium-read-only`. Below this is a section titled 'GUI and IDE access' with the text: 'This project's Subversion repository may be accessed using many different [client programs and plug-ins](#). See your client's documentation for more information.'

Source Checkout - selenium x

code.google.com/p/selenium/source/checkout

My favorites | Sign in

 selenium  
Browser automation framework

[Project Home](#) [Downloads](#) [Wiki](#) [Issues](#) **Source**

[Checkout](#) [Browse](#) [Changes](#)

**How-to:** Explore this project's source code by clicking the "Browse" and "Changes" links above.

**Command-line access**

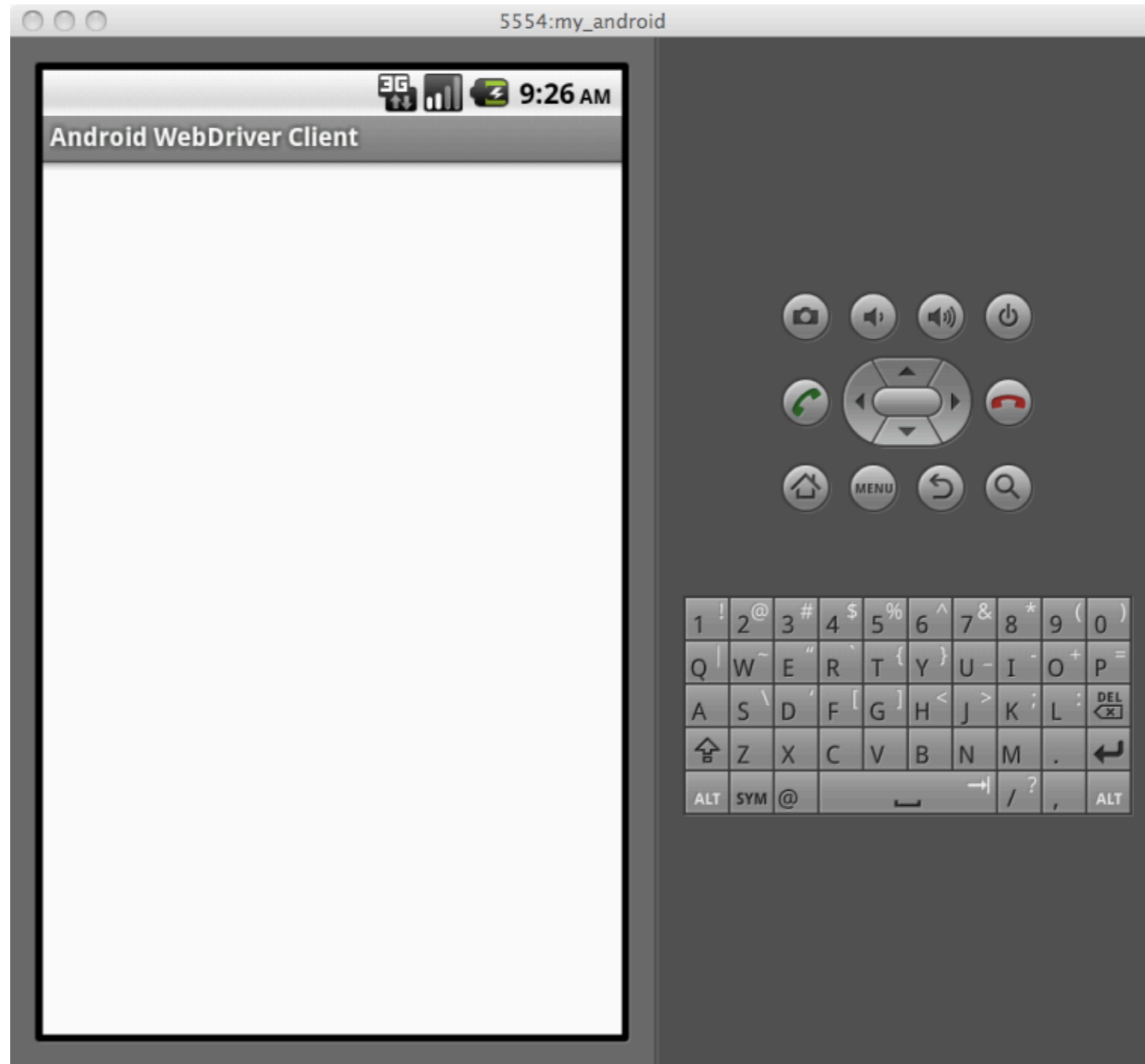
Use this command to anonymously check out the latest project source code:

```
# Non-members may check out a read-only working copy anonymously over HTTP.  
svn checkout http://selenium.googlecode.com/svn/trunk/ selenium-read-only
```

**GUI and IDE access**

This project's Subversion repository may be accessed using many different [client programs and plug-ins](#). See your client's documentation for more information.

# Android



# Download Android SDK

The screenshot shows a web browser window with the URL `developer.android.com/sdk/index.html`. The page title is "Download the Android SDK". The left sidebar contains navigation links for "Android SDK Starter Package", "Download", "Downloadable SDK Components", "ADT Plugin for Eclipse", and "Native Development Tools". The main content area includes a welcome message, a table of SDK packages for Windows, Mac OS X, and Linux, and a list of steps to set up the SDK.

## Download the Android SDK

Welcome Developers! If you are new to the Android SDK, please read the steps below, for an overview of how to set up the SDK.

If you're already using the Android SDK, you should update to the latest tools or platform using the *Android SDK and AVD Manager*, rather than downloading a new SDK starter package. See [Adding SDK Components](#).

Platform	Package	Size	MD5 Checksum
Windows	<a href="#">android-sdk_r10-windows.zip</a>	32832260 bytes	1e42b8f528d9ca6d9b887c58c6f1b9a2
	<a href="#">installer_r10-windows.exe</a> (Recommended)	32878481 bytes	8ffa2dd734829d0bbd3ea601b50b36c7
Mac OS X (intel)	<a href="#">android-sdk_r10-mac_x86.zip</a>	28847132 bytes	e3aa5578a6553b69cc36659c9505be3f
Linux (i386)	<a href="#">android-sdk_r10-linux_x86.tgz</a>	26981997 bytes	c022dda3a56c8a67698e6a39b0b1a4e0

Here's an overview of the steps you must follow to set up the Android SDK:

1. Prepare your development computer and ensure it meets the system requirements.
2. Install the SDK starter package from the table above. (If you're on Windows, download the installer for help with the initial setup.)
3. Install the ADT Plugin for Eclipse (if you'll be developing in Eclipse).
4. Add Android platforms and other components to your SDK.
5. Explore the contents of the Android SDK (optional).

To get started, download the appropriate package from the table above, then read the guide to [Installing the SDK](#)

# Unpack

~/android\_sdk

# Update

```
$ cd ~/android_sdk/tools  
$ ./android update sdk
```



# Create AVD

```
$ ./android create avd \  
    -n my_android \  
    -t 8 \  
    -c 100M
```

# Start Emulator

```
$ ./emulator -avd my_android \  
-no-audio \  
-no-boot-anim \  
-scale .8 &
```

# Install Selenium APK

```
$ cd ~/android_sdk/platform-tools/  
$ ./adb -e install \  
    -r ~/selenium/android/prebuilt/android-server.apk
```

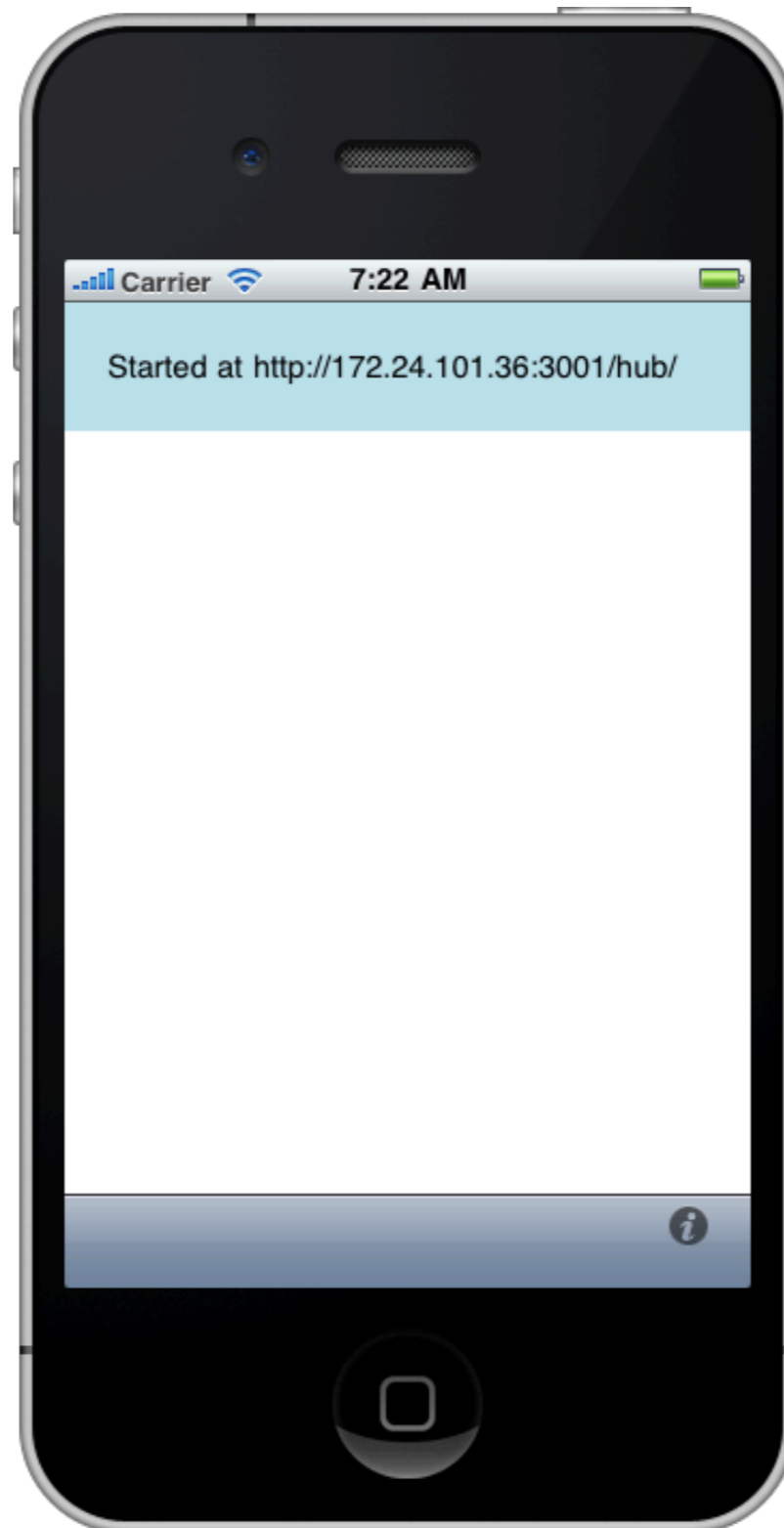
# Port Forwarding

```
$ ./adb forward tcp:8080 tcp:8080
```

# (One More Step)

Launch WebDriver App

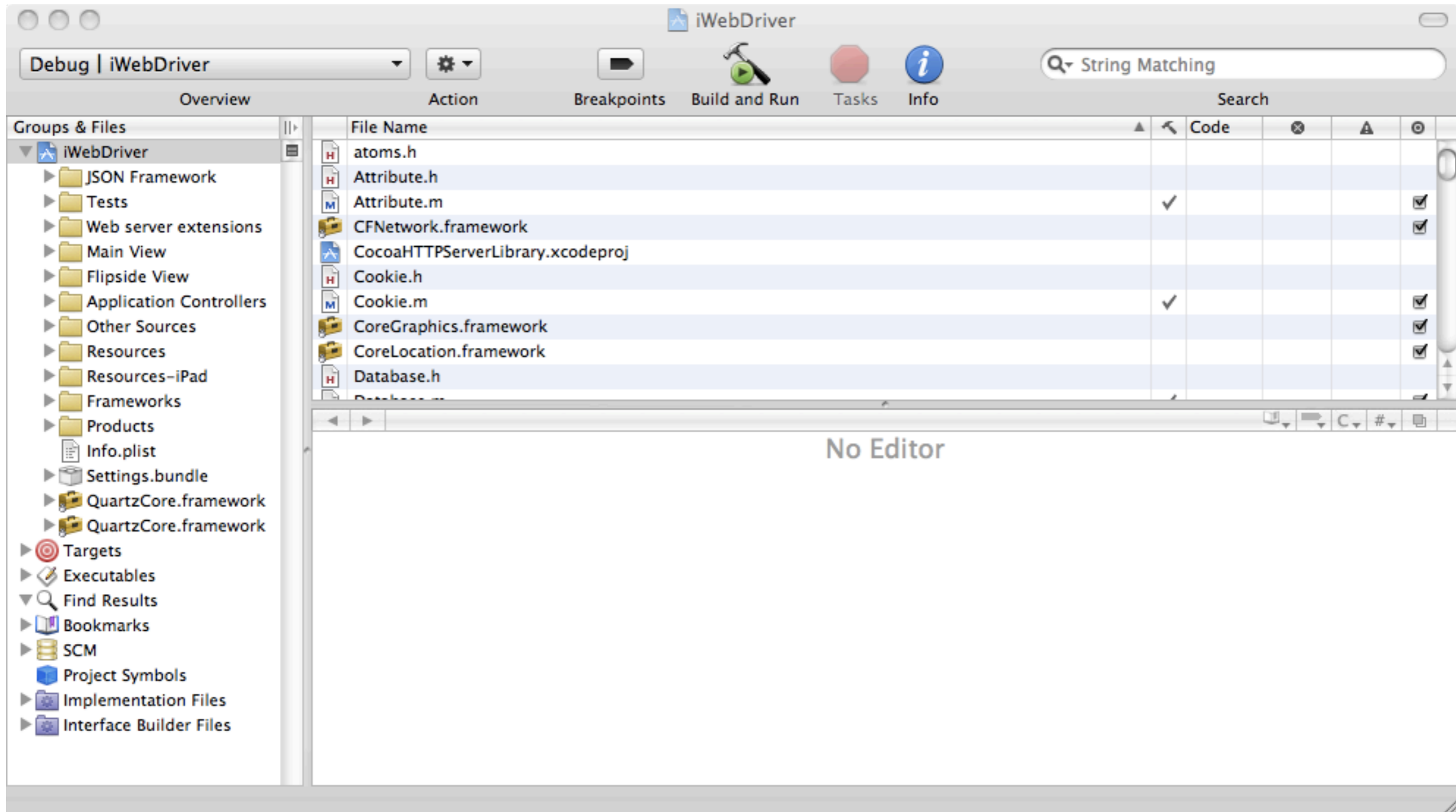
# iPhone



# Open in XCode

```
$ open ~/selenium/iphone/iWebDriver.xcodeproj/
```

# Build & Run





**Demo!**

# The Code:

```
# Import the Selenium 2 namespace (aka "webdriver")
from selenium import webdriver

# Run one of the four following commands:

# iPhone
driver = webdriver.Remote(browser_name="iphone",
                          command_executor='http://172.24.101.36:3001/hub')

# Android
driver = webdriver.Remote(browser_name="android",
                          command_executor='http://127.0.0.1:8080/hub')

# Google Chrome
driver = webdriver.Chrome()

# Firefox
driver = webdriver.Firefox()
```

# The Code:

```
# The actual test scenario: Test the codepad.org code execution service.

# Go to codepad.org
driver.get( 'http://codepad.org' )

# Select the Python language option
python_link = driver.find_elements_by_xpath( "//input[@name='lang' and @value='Python']" )
[0]
python_link.click()

# Enter some text!
text_area = driver.find_element_by_id( 'textarea' )
text_area.send_keys( "print 'Hello,' + ' World!'" )

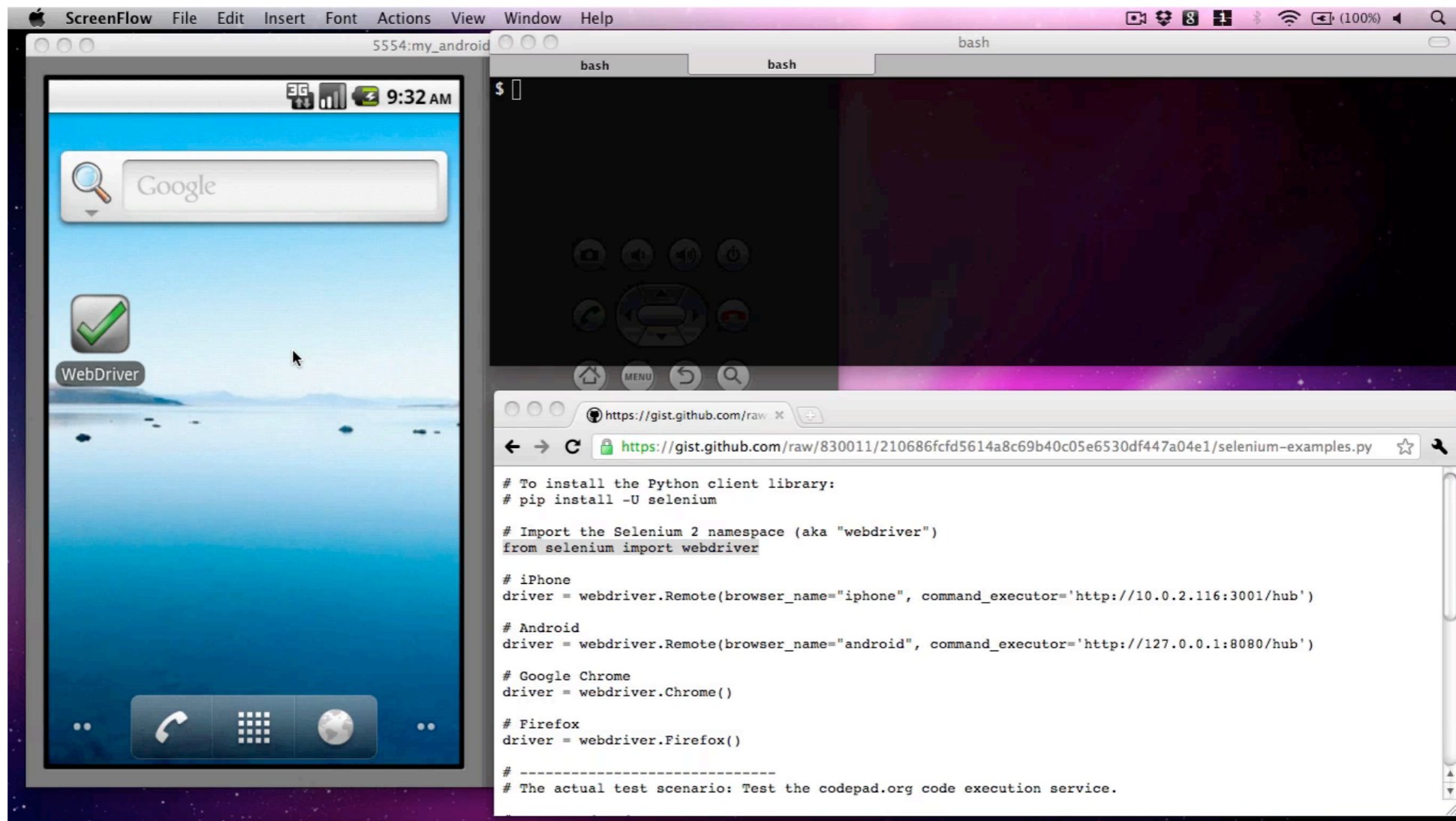
# Submit the form!
submit_button = driver.find_element_by_name( 'submit' )
submit_button.click()

# Make this an actual test. Isn't Python beautiful?
assert "Hello, World!" in driver.get_page_source()

# Close the browser!
driver.quit()
```

# Selenium 2 - The Movie

<http://www.youtube.com/watch?v=IUUcElfkOEY>



# Links

## For More Information:

- ✓ <http://seleniumhq.org>
- ✓ <http://code.google.com/p/selenium>
- ✓ <http://code.google.com/p/se-builder/>
- ✓ <http://saucelabs.com/docs/selenium2>
- ✓ <http://twitter.com/hugs>

## Slides:

- ✓ <http://www.slideshare.net/hugs/se2pycon>

## Demo Screencast:

- ✓ <http://www.youtube.com/watch?v=IUUcEIfkOEY>

## Code:

- ✓ <http://gist.github.com/830011>

# Thanks!

## **Jason Huggins**

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