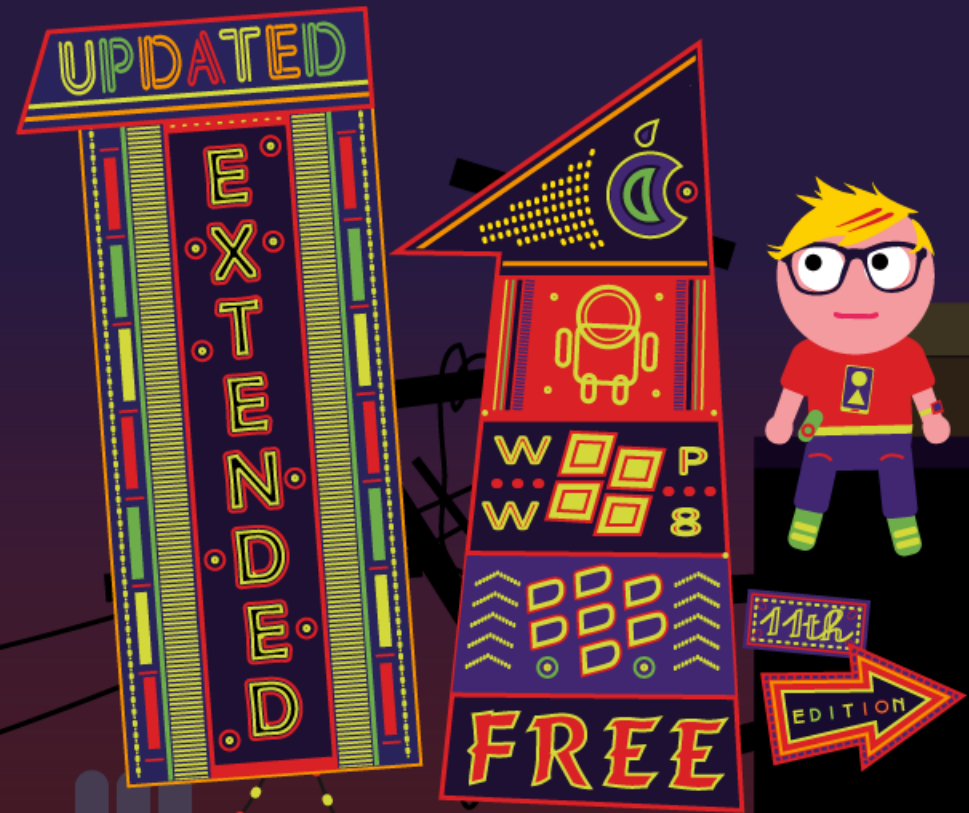


Don't Panic

Mobile Tester's Guide to the Galaxy



Julian Harty
At Unicom India 12 July 2013

An Introduction

The universe of mobile platforms

A is for **Android**

B is for ~~BlackBerry~~, ~~Bada~~, ~~Brew~~, **BlackBerry 10**

F is for ~~Flash~~, Firefox OS

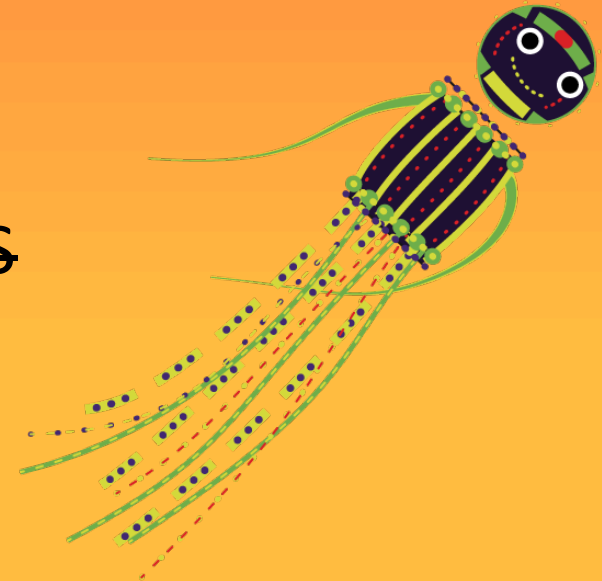
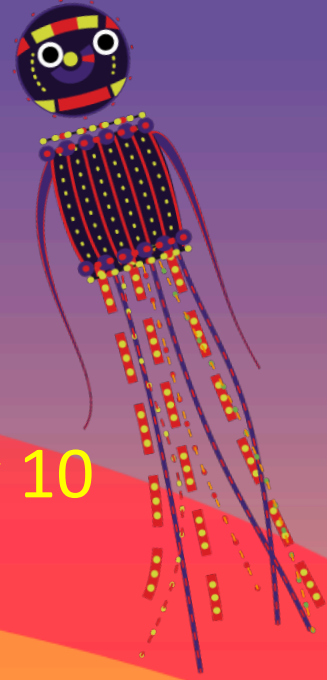
I is for **iOS**

H is for HTML5 **Web Apps**

J is for ~~J2ME~~

S is for ~~Symbian~~

W is for **Windows Phone**, ~~Web OS~~



An Introduction

To testing mobile apps

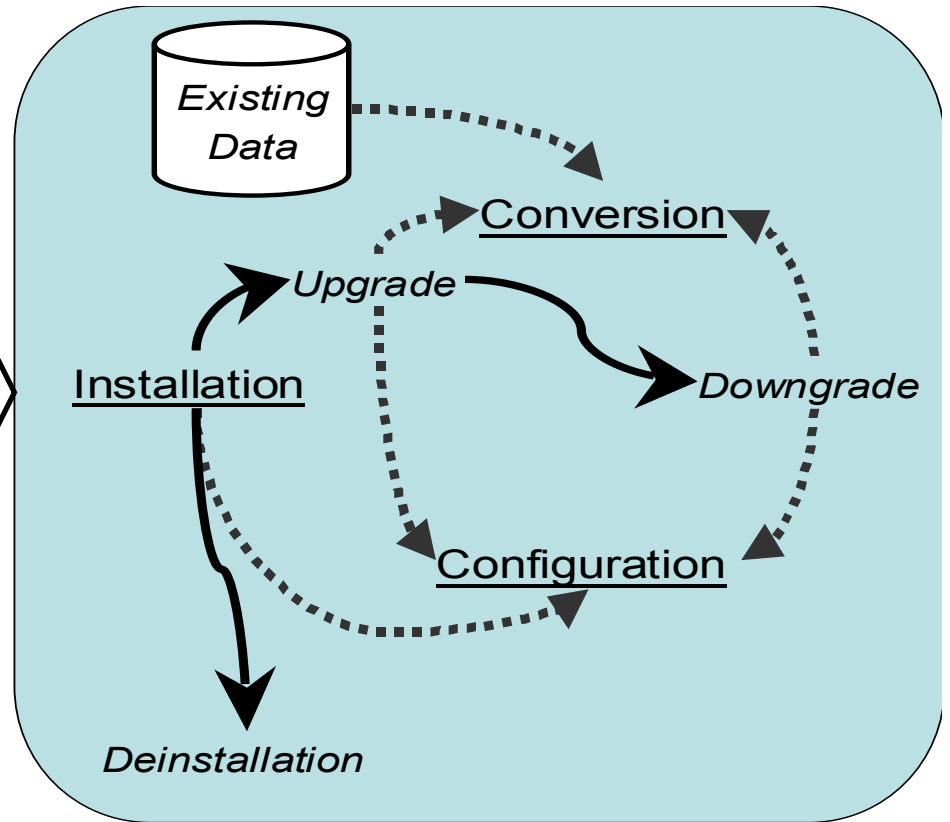
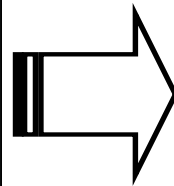
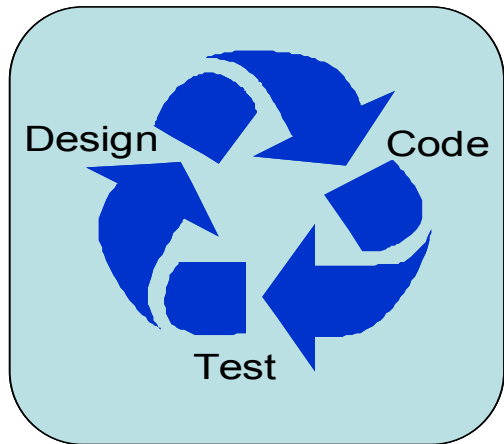
- Testability
- Test-Driven Development (TDD)
- Unit Testing
- Testing throughout the 5-phases of the mobile application Lifecycle
- Interactive Testing
- Test Automation
- Beware of Specifics



Brain dump of ideas

- Subway map analogy – complex, parallel paths
- Flow diagrams, showing when an app enters the tester's domain, types of testing, and the transition back to the business
- Glass-box visibility into an app's data (testing for minimum security bar)
- Greedy pigs – apps as resource gobblers
- Under-water

Lifecycles of software

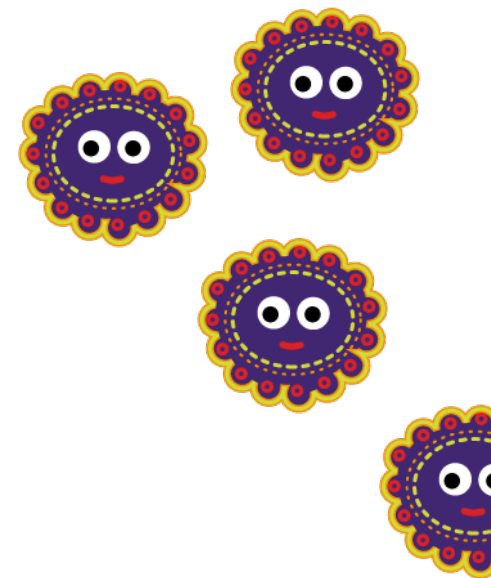


Software Development Life Cycle

Software Usage Life Cycle



Mobile Development From *Creation* to *Use*⁽ⁱ⁾

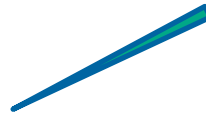
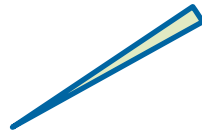


Implementation

Design

Code

Build



Verification

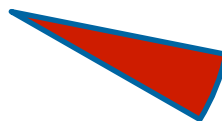
Unit Tests

Internal Installation

System Tests



Launch



Pre-publication Publication



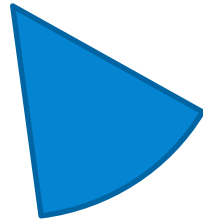
Mobile Development

From *Creation* to *Use*⁽ⁱⁱ⁾

Engagement



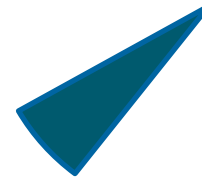
Search



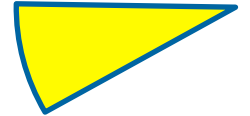
Trust



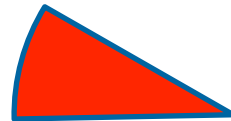
Download



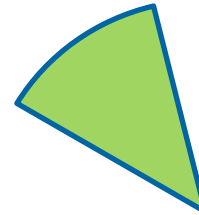
Installation



Validation



Payment



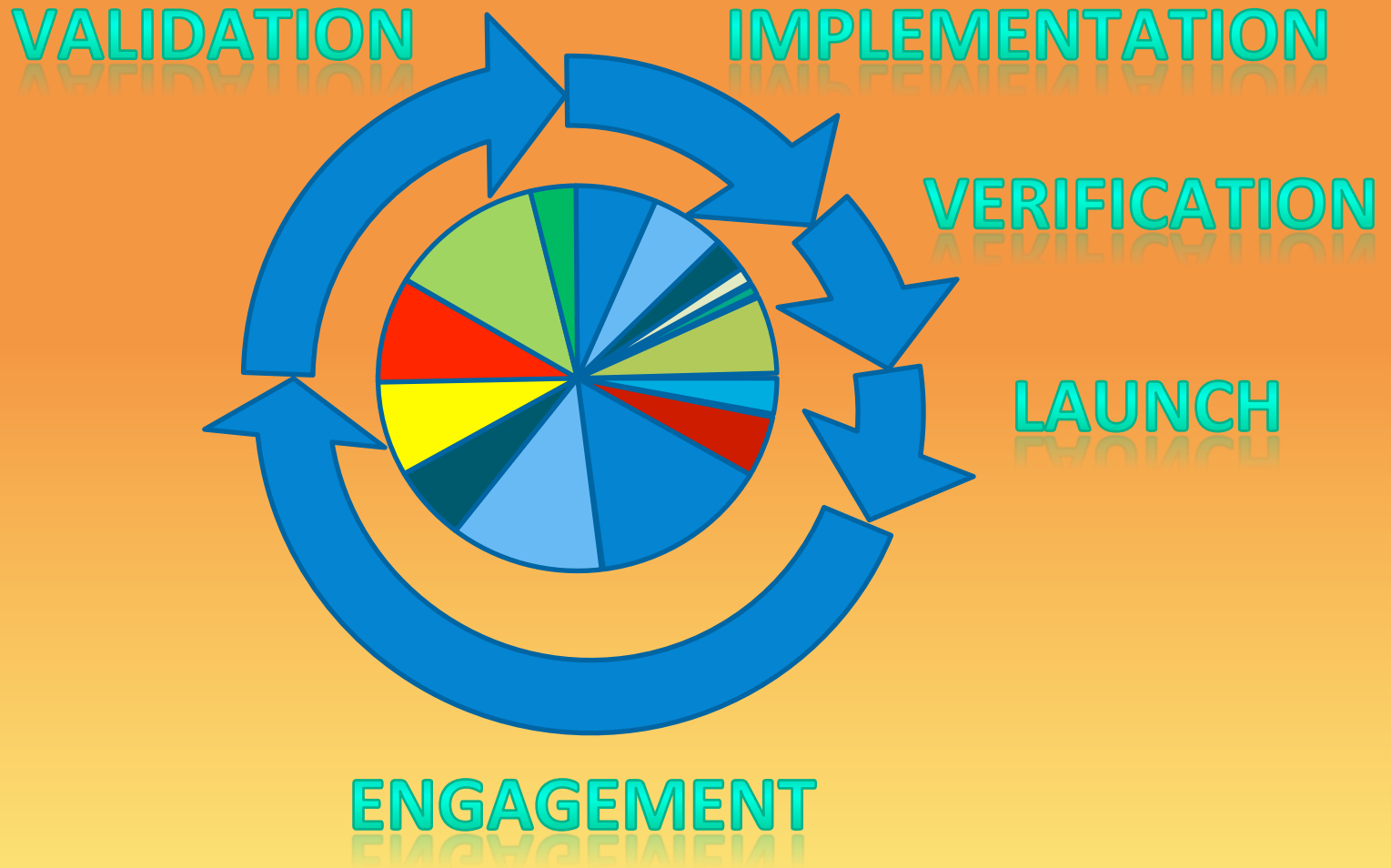
Use



Feedback



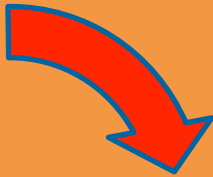
From *Creation* to *Use* Pie Chart



Note: The dimensions are indicative, rather than realistic

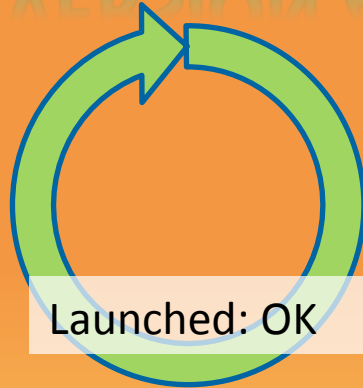
Iterations & Updates

VERSION A⁻¹



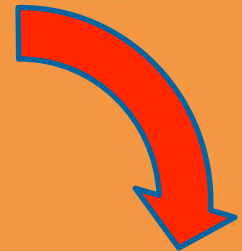
Rejected: Testing

VERSION A



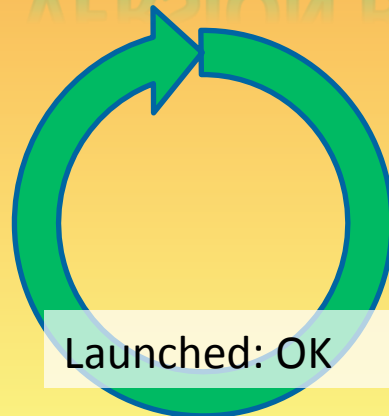
Launched: OK

VERSION A⁺¹



Rejected: Approval

VERSION B



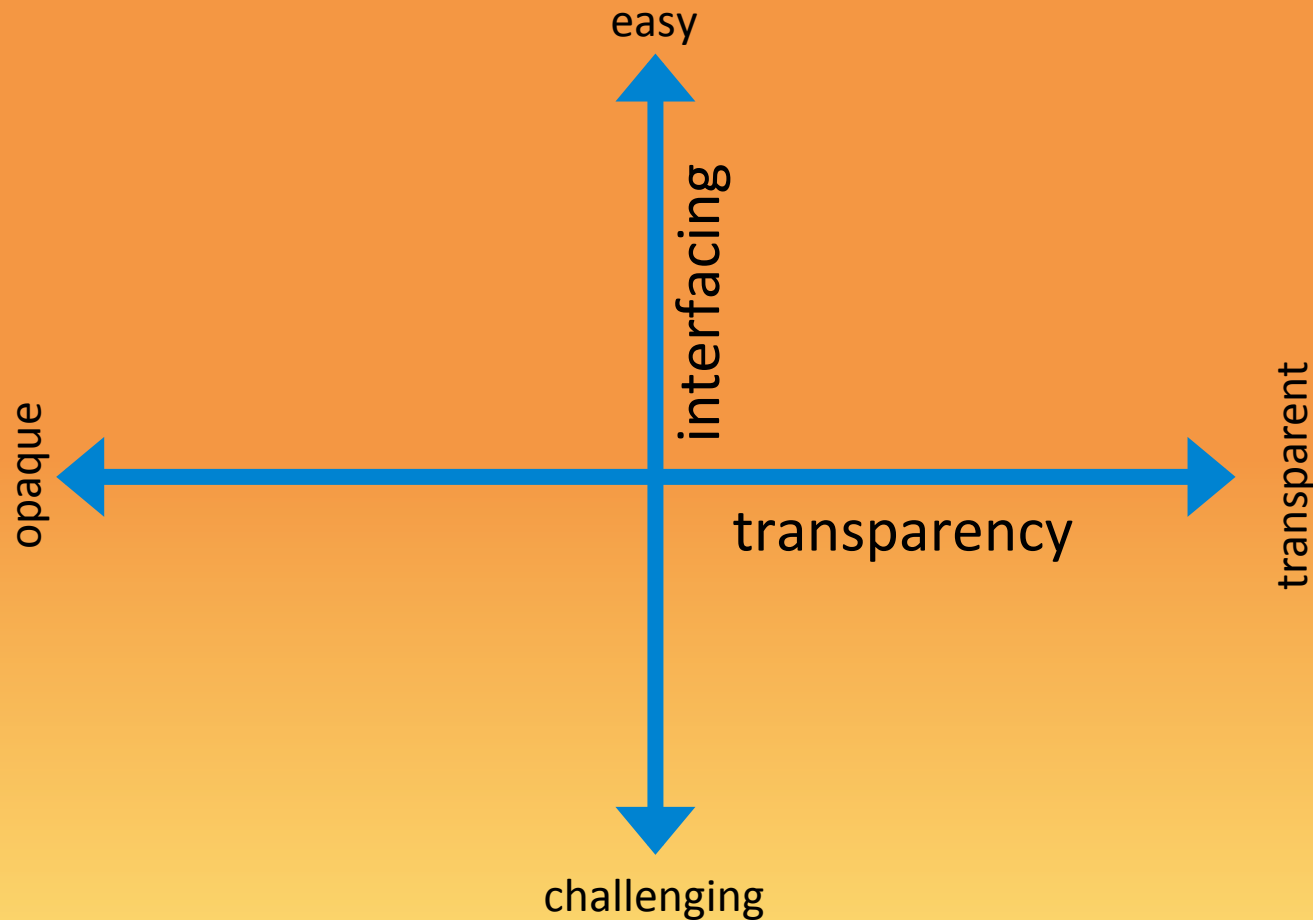
Launched: OK

Next
Successful
Update

What is testability?

- The concept of designing & implementing software **so it is easier to test**
- Testing can be automated
- Testing can be interactive

Scales of Testability



There are at least 2 dimensions of Testability:

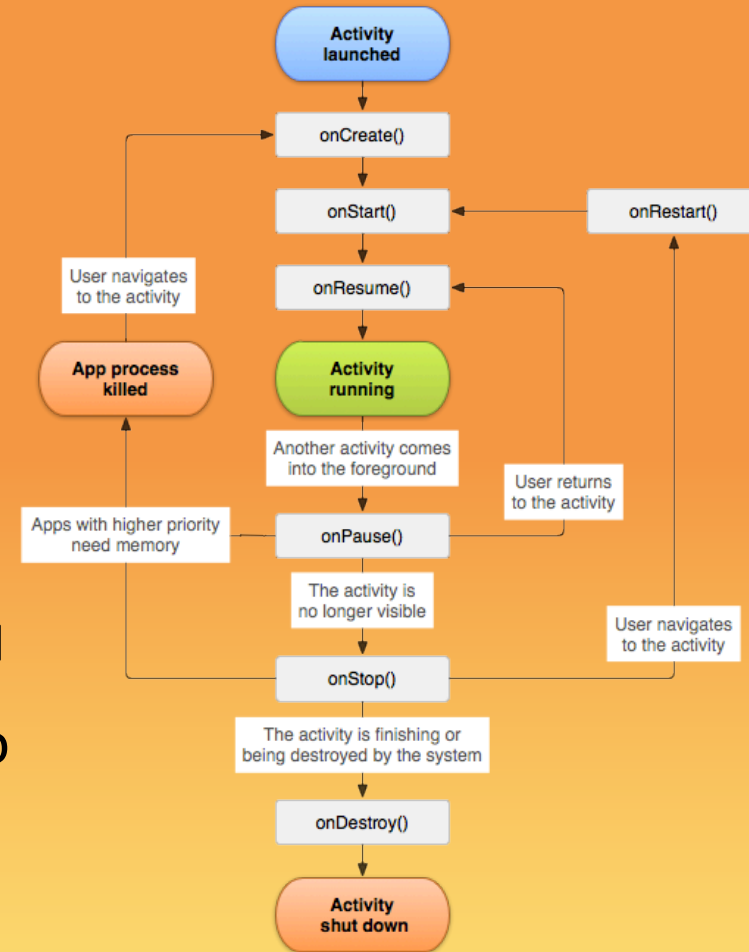
- ease of *interfacing*
- *transparency* into the state & behaviour of the software being tested.

Feeling underwater?



Testing Android

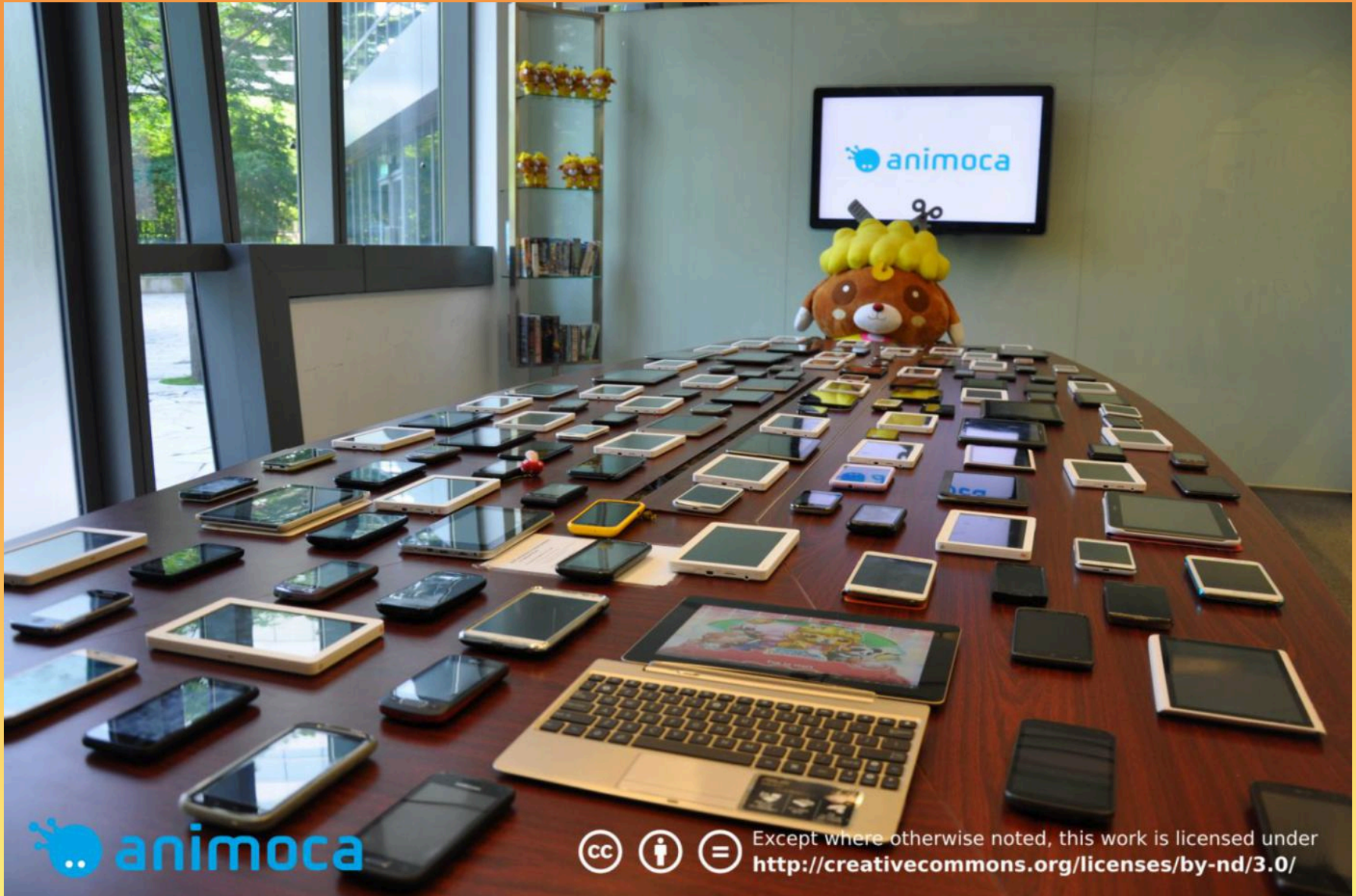
- Apps easy to deploy
- Learn the command line tools e.g. adb, android, monitor
- A plethora of devices to obtain sufficient coverage [1]
- Understand and test apps throughout the application lifecycle [2]
- Fake GPS easy; other inputs harder to control



[1] <http://techcrunch.com/2012/06/02/android-qa-testing-quality-assurance/>

[2] <http://developer.android.com/reference/android/app/Activity.html>

Testing Android



Android Test Automation tools

Many choices

- Robotium – Enhanced Instrumentation testing
- Unit tests – Simple for developers to use but dated
- Instrumentation – Underpins testing of solitary apps
- MonkeyRunner – GUI based interaction with the UI
- MonkeyTalk – Opensource cross-platform, aimed at the code illiterate. Agent-based^[1]
- Calabash – High-level, easy-to-use, scripting
- Roboelectric – replica of Android core, fast testing on PC
- UI Automator – Android 4.1+ uses Accessibility interface to test any app.

[1] <http://www.gorillalogic.com/monkeytalk-documentation/monkeytalk-getting-started/install-agent>

Testing BlackBerry 10

- The BlackBerry 10 Device Simulator lets you load and test your apps even when you don't have a physical device. You can access most of the features you would find on a physical device.
- Using the simulator, you can use your mouse to simulate gestures, configure snapshots for debugging, and simulate features like tilting or rotating the device.

Testing iOS

- Unit Testing
- UI Automation framework – Uses Accessibility Interface
- Instruments – collection of useful tools
- Simulators – running on OS X
- Deployment to devices: 100 per account per year
- Remote deployment made easier
 - TestFlight
 - HockeyApp

Testing Windows Phone

- Devices based on reference specifications from Microsoft
- Test the different screen dimensions, including: 16:9 & 16:10
- Apply the guidelines from Microsoft before uploading app to AppStore
 - Windows Phone Store Test Kit ^[1]
- UI Test (automation) project^[2]

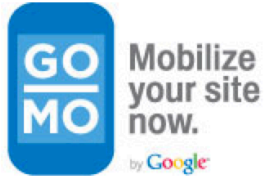
[1] [http://msdn.microsoft.com/en-us/library/windowsphone/develop/hh394032\(v=vs.105\).aspx](http://msdn.microsoft.com/en-us/library/windowsphone/develop/hh394032(v=vs.105).aspx)

[2] <http://code.msdn.microsoft.com/wpapps/Simple-UI-Test-for-Windows-dc0573a9>

Testing Web Apps

- Embedded Browser
- Pre-installed Browser
- User-installed Browsers e.g. Firefox, Opera, Dolphin
- Selenium-WebDriver for iOS and Android
- Spoofing
- Using online tools

Online tools for Web Sites



WHY GO MO?

TEST YOUR SITE

GET STARTED


ALREADY MOBILE?

GoMoMeter

GOMOMETER

This is what your site looks like to mobile consumers. Now, choose the category that best describes your business:

Publisher (selected) ▾

 Your business is about creating and selling content, whether online or in physical form. Your objective is sales and engagement.

Online-Only >

Lead Generation >

Brand Driven >

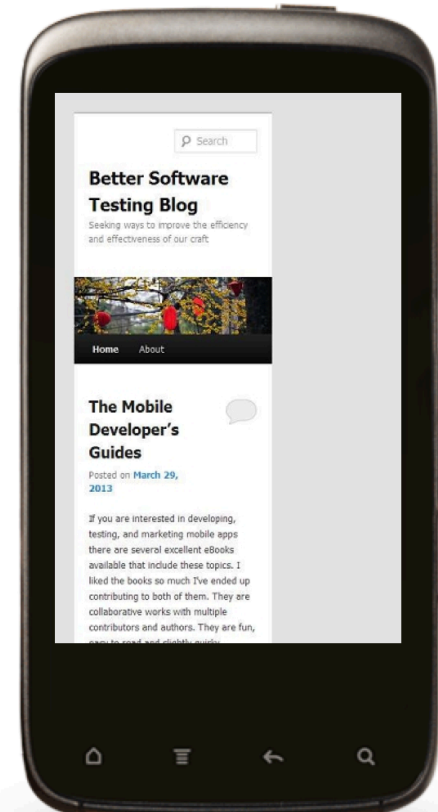
Multichannel >

Next, we'll ask a few questions to help us see how your site is working.

We'll also rate you on your site's loading speed.

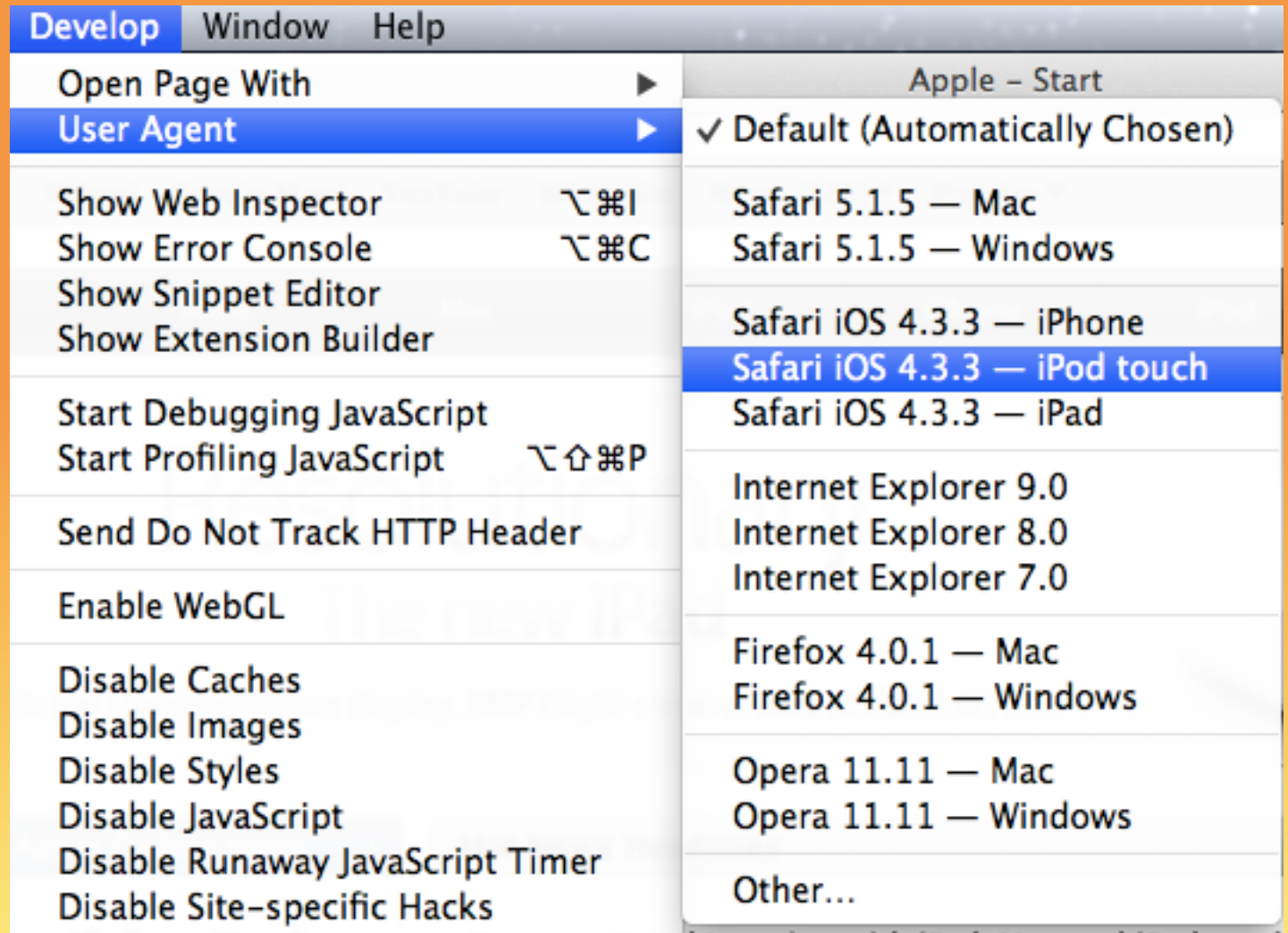
Do you see broken images or missing content? YES NO

Can you read the text without zooming or scrolling side to side? YES NO



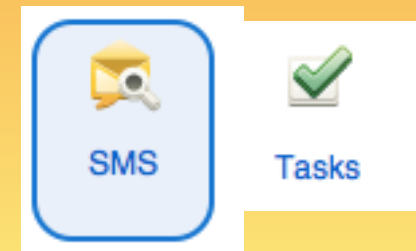
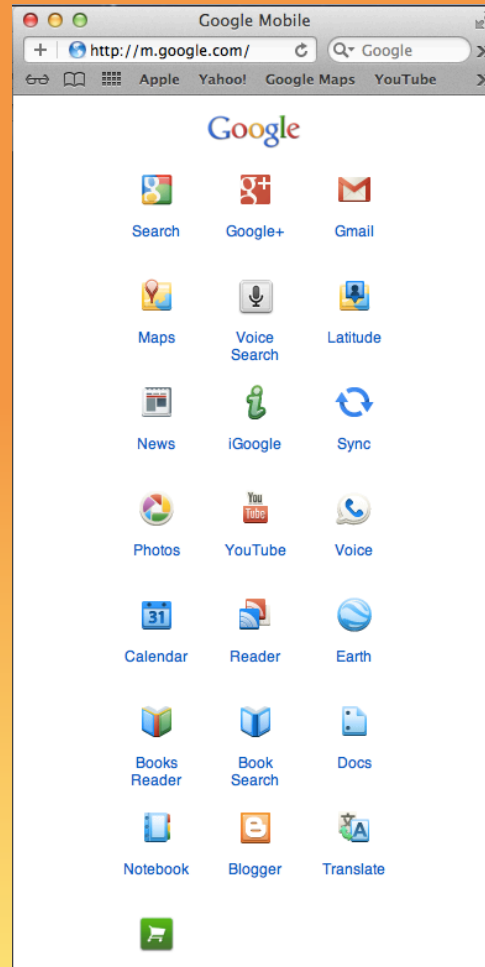
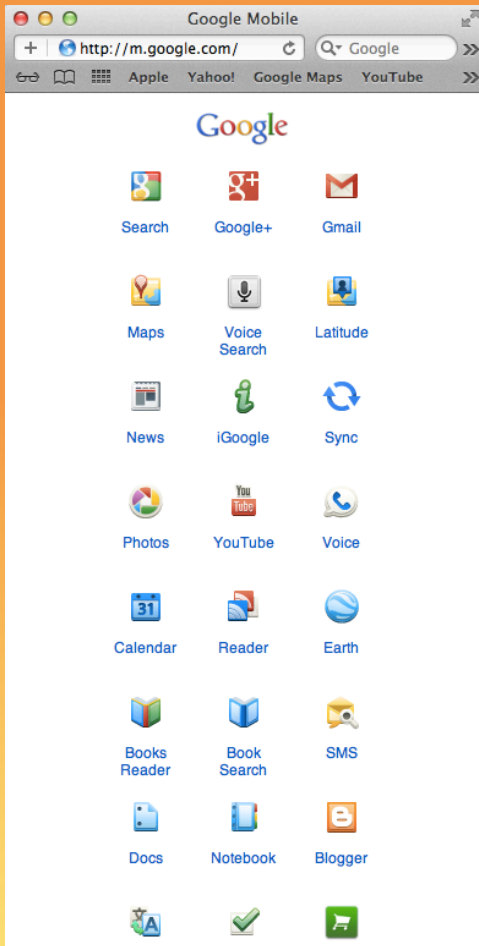
<http://www.howtogomo.com/en/d/test-your-site/#gomo-meter>

Browser emulation



In Apple's Safari Browser

Effects of browser emulation



- Google Mobile for iPhone; and iPad
- Notice 2 extra icons?

Using Virtual Devices

- Run on computers, not mobile devices.
- Pretend to be the real thing to varying degrees of authenticity
- Often provide permissive security
- Available in:
 - Mobile Development SDKs
 - From manufacturers of devices
- Useful when:
 - You have no alternative
 - You don't need rich fidelity

Using Real Devices

- Valuable & Expensive
- Must be maintained & available when needed
- Enable rich (scenario) testing

- Ease of coverage:
 - iOS: easy
 - Windows Phone: fair
 - Android: impractical



Feeling suicidal?

Call the Test Automation Teams

- LessPainful¹
- GorillaLogic

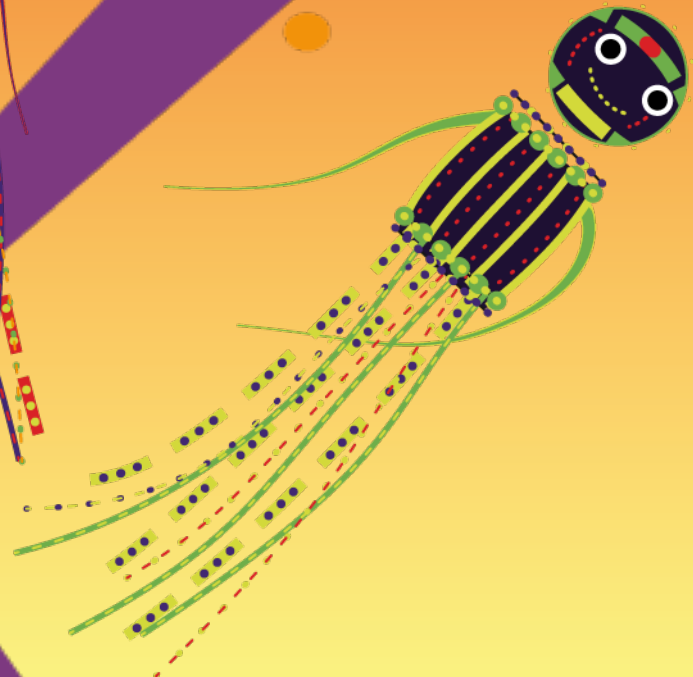
24 hour satisfaction guaranteed

1. Now part of xamarin

Further Reading

3 'J's of mobile testing

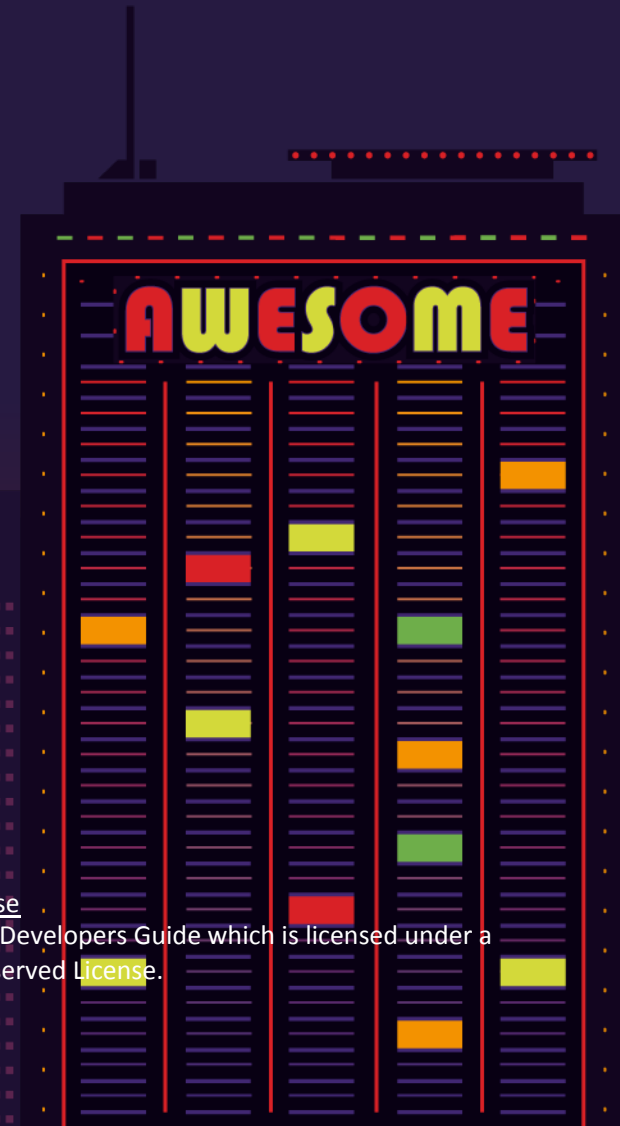
1. Karen Johnson
2. Jonathan Kohl
3. Julian Harty



The end?

To contact me:

julianharty@gmail.com



[Creative Commons License](https://creativecommons.org/licenses/by-sa/3.0/deed.en_US)

Don't Panic Mobile Testers Guide to the Galaxy by Julian Harty is licensed under a Creative Commons Attribution-ShareAlike 3.0 Unported License.

[http://creativecommons.org/licenses/by-sa/3.0/deed.en_US](https://creativecommons.org/licenses/by-sa/3.0/deed.en_US)

[Creative Commons License](https://creativecommons.org/licenses/by-sa/3.0/deed.en_US)

The images are from the Developers Guide which is licensed under a Creative Some Rights Reserved License.