



Mobile Testing – That's Just a Smaller Screen, Right?



Stephen Janaway



Who am I?

Stephen Janaway



- 14 years experience in mobile software testing.
- Software testing and test management.
- Main focus on the mobile device and applications area.
- Have worked for companies such as Ericsson, Motorola and Nokia.



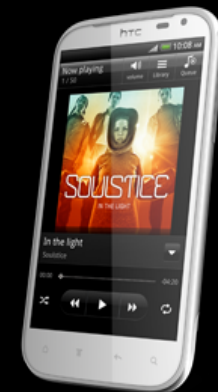
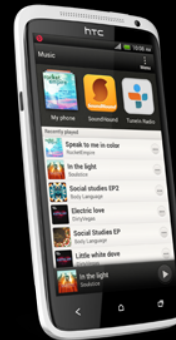
www.stephenjanaway.co.uk



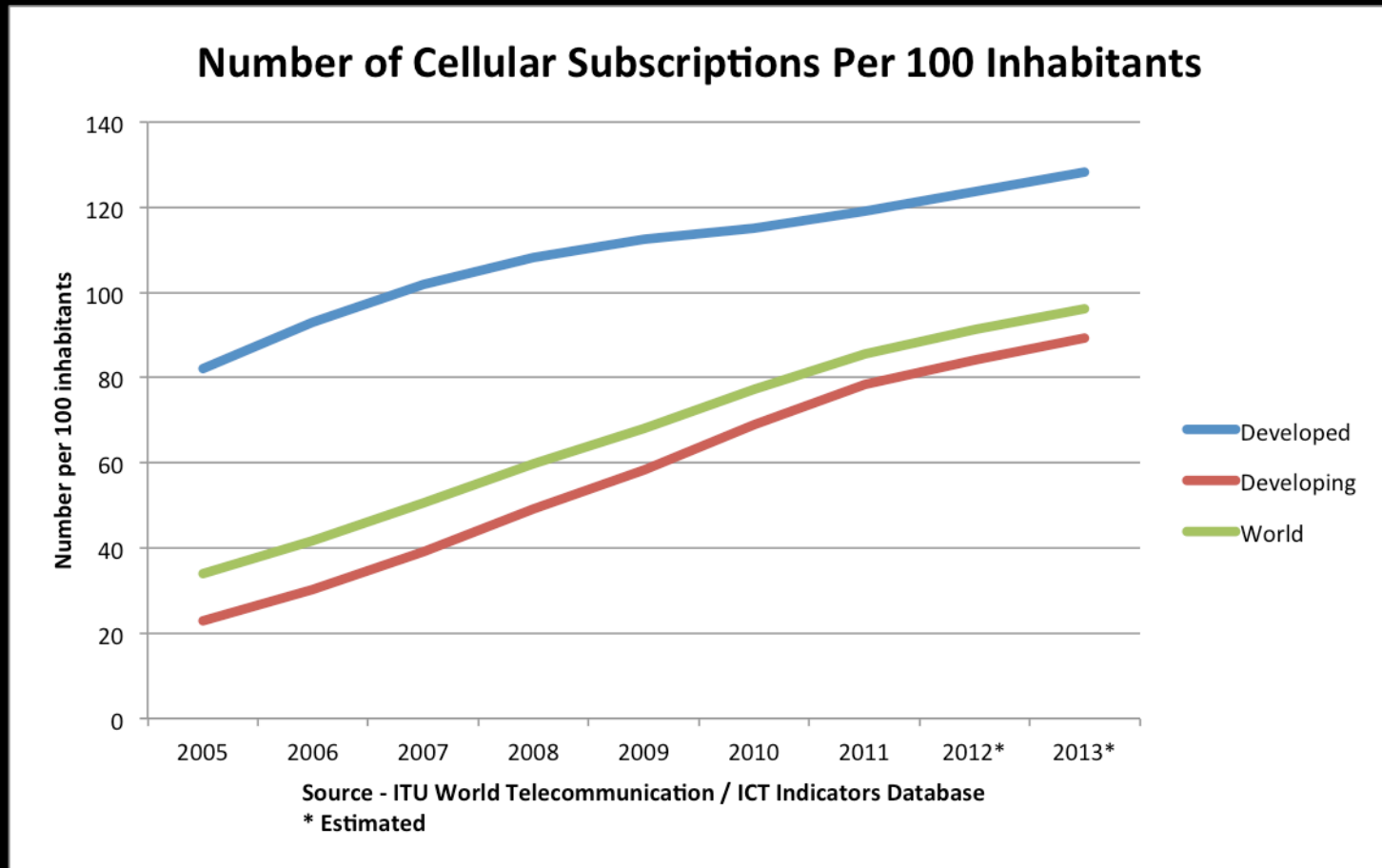
@stephenjanaway

This Presentation

- Why mobile testing?
- What is mobile testing?
- Hints, tips and techniques.
- Why get involved?



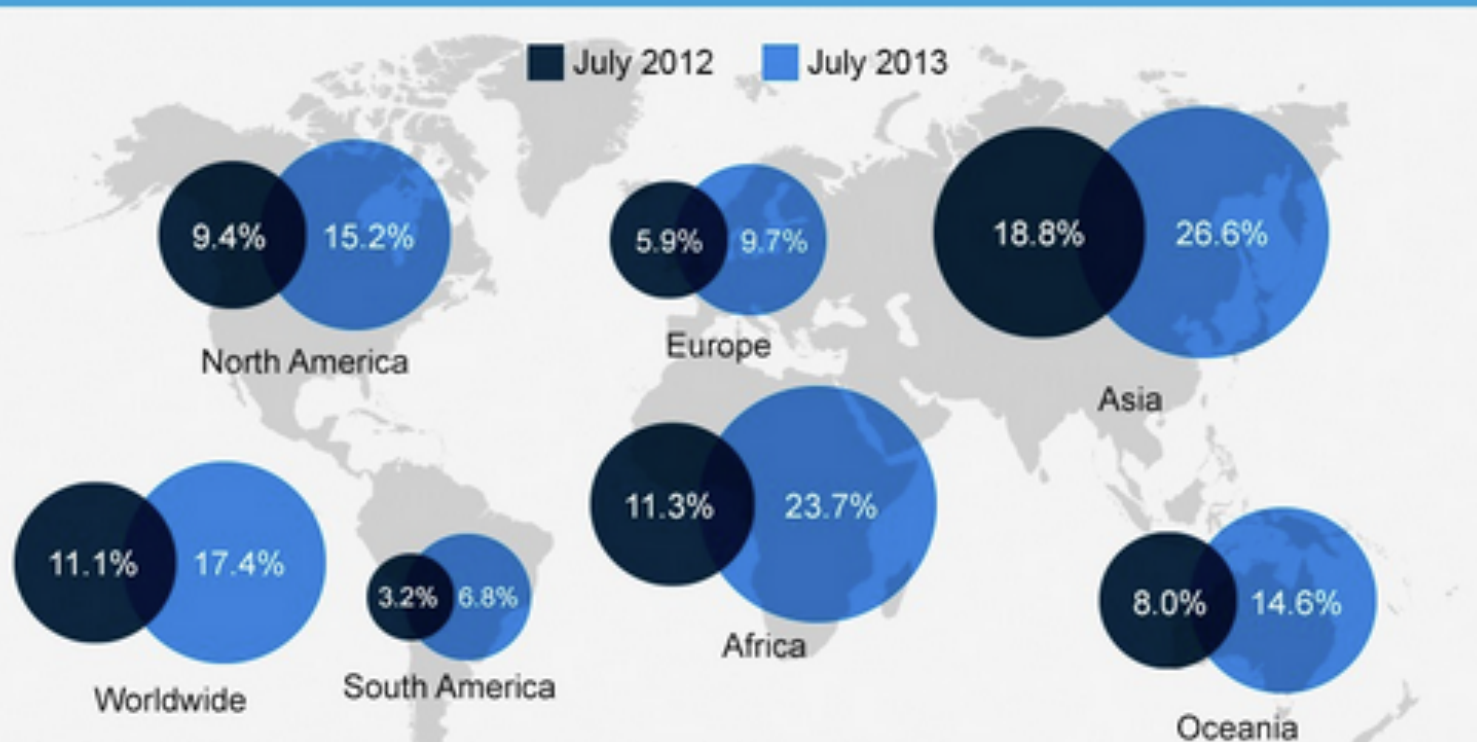
So Why Mobile?



So Why Mobile?

Mobile Phones Account for 17% of Global Web Usage

Percentage of page views coming from mobile devices*



* StatCounter defines mobile as a pocket-sized computing device, excluding tablets

The mobile market is huge

Worldwide Mobile Phone Sales to End Users by Vendor in 2013 (Thousands of Units)

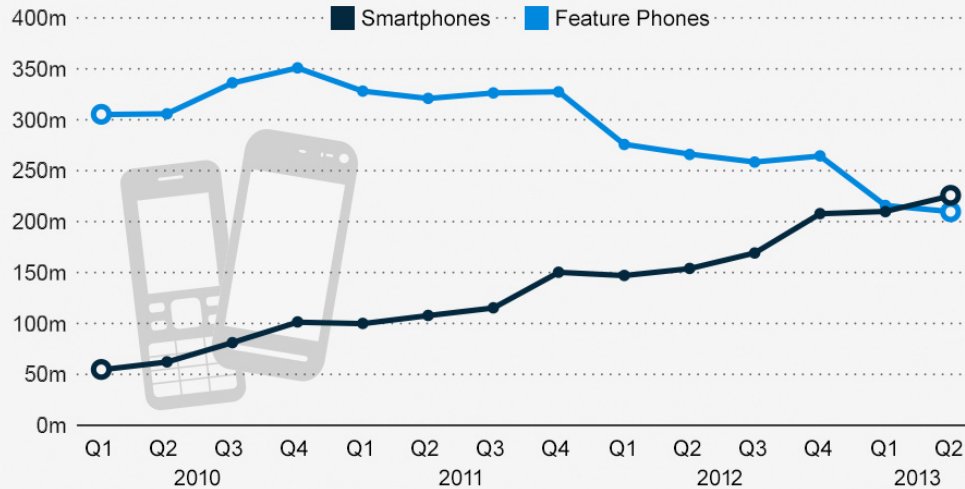
Company	2013 Units	2013 Market Share (%)	2012 Units	2012 Market Share (%)
Samsung	444,444.2	24.6	384,631.2	22.0
Nokia	250,793.1	13.9	333,938.0	19.1
Apple	150,785.9	8.3	130,133.2	7.5
LG Electronics	69,024.5	3.8	58,015.9	3.3
ZTE	59,898.8	3.3	67,344.4	3.9
Huawei	53,295.1	2.9	47,288.3	2.7
TCL Communication	49,531.3	2.7	37,176.6	2.1
Lenovo	45,284.7	2.5	28,151.4	1.6
Sony Mobile Communications	37,595.7	2.1	31,394.2	1.8
Yulong	32,601.4	1.8	18,557.5	1.1
Others	613,710.0	34.0	609,544.9	34.9
Total	1,806,964.7	100.0	1,746,175.6	100.0

Source: Gartner (February 2014)

It's Increasingly Smartphones and Tablets

Smartphones Outsold Feature Phones for the First Time in Q2

Worldwide mobile phone sales to end users (in million units)



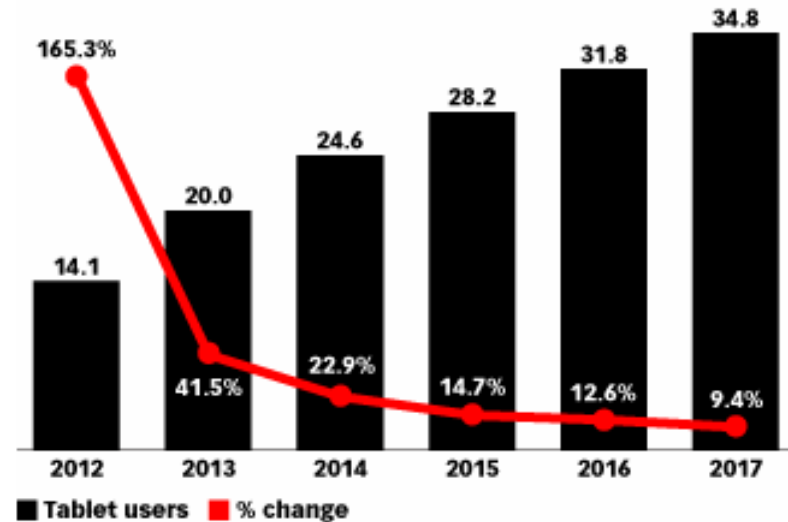
statista
The Statistics Portal

Mashable

Source: Gartner

UK Tablet Users, 2012-2017

millions and % change



Note: individuals of any age who use a tablet at least once per month
Source: eMarketer, Oct 2013

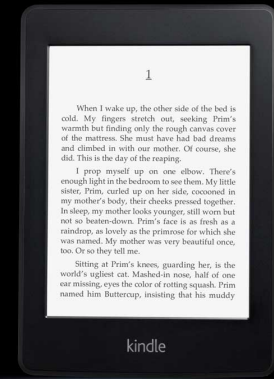
163863

www.eMarketer.com



Mobile devices are

- Smart Phones
- Feature Phones
- Tablets
- E-readers
- Big screens. small screens. touch screens and keypads.



And now...

- Fitness devices.
- Smart watches.
- Medical devices.
- Trackers.



Mobile devices are much more

- Alarm Clocks
- Maps
- Link to loved ones
- Hand held shops
- Tickets
- Music Players
- Books
- Games Players
- Cameras
-



- These are key experiences. Imagine if they did not work?

My alarm didn't go off...

I'm lost



MOBILE USERS ARE MORE
EMOTIONALLY ATTACHED



QUALITY IS NOT CURRENTLY
GREAT (BUT DO USERS CARE?)...

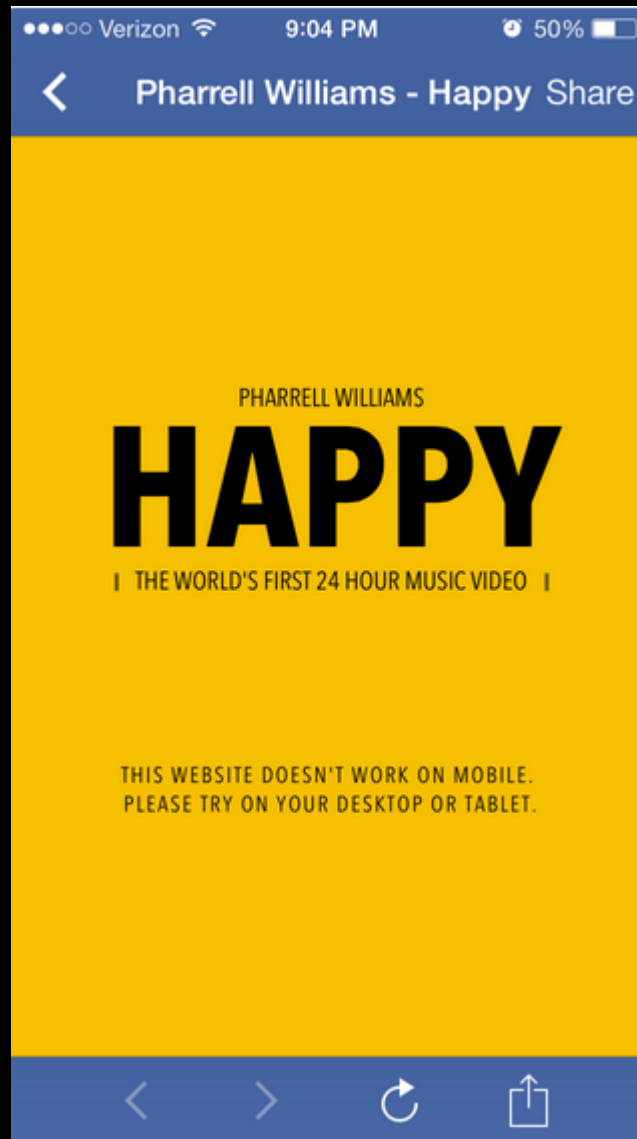
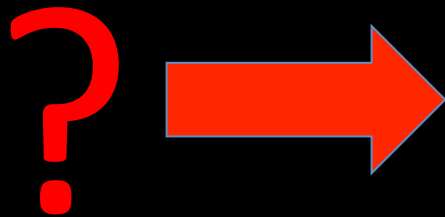


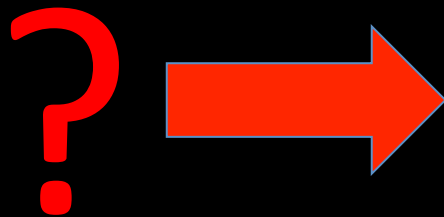
MOBILE USERS CAN LEAVE BAD
FEEDBACK MUCH MORE QUICKLY



MOBILE USERS ARE NOT SECOND CLASS CITIZENS







Sprint 2:13 PM 29%

digitaltrends.com

Side note: There is an [Android app called Woof](#), as well – but they aren't the same thing. The Android Woof is an Italian social networking app for dog owners in Italy, just in case you google woof and get confused.

See Also: [Nexus 5 vs. Nexus 4: How does Google's latest unlocked phone stack up?](#) »

No comments yet, be the first!

SWITCH TO THE DESKTOP SITE TO POST A COMMENT.

DIGITAL TRENDS **DESKTOP** **MOBILE**

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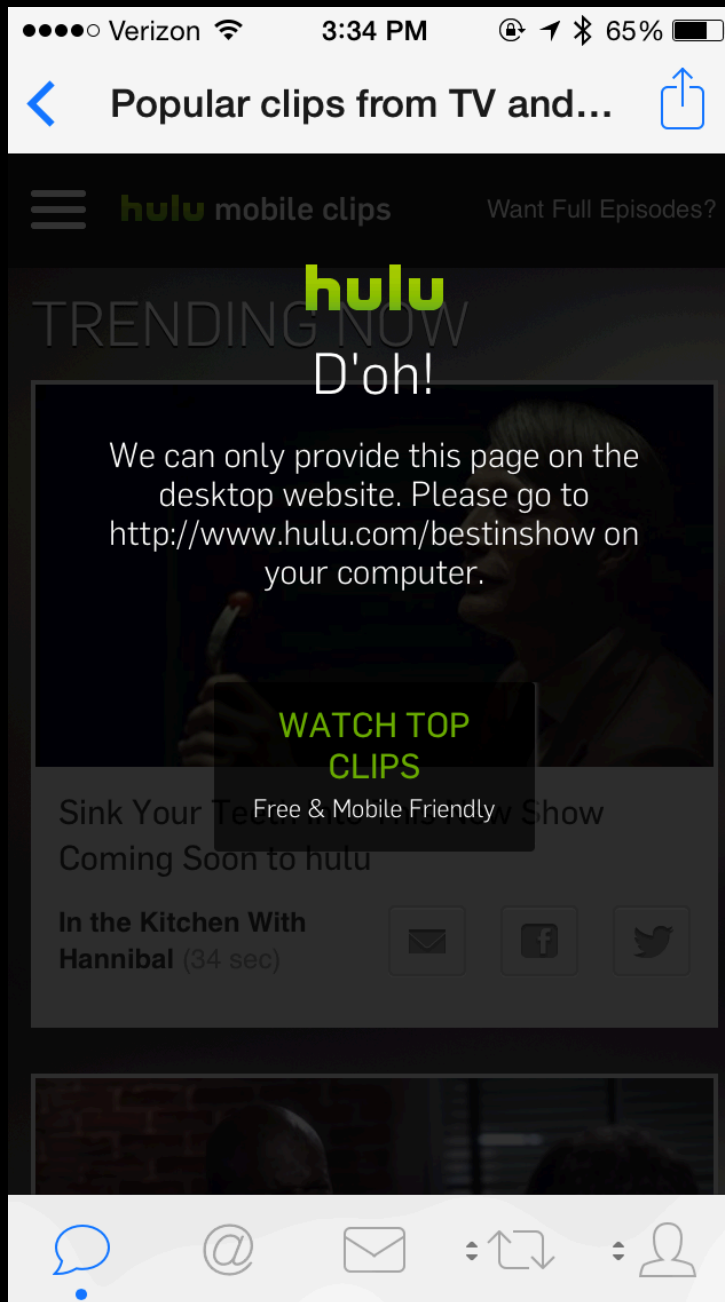
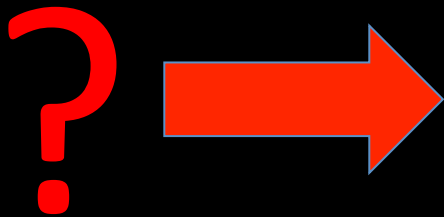
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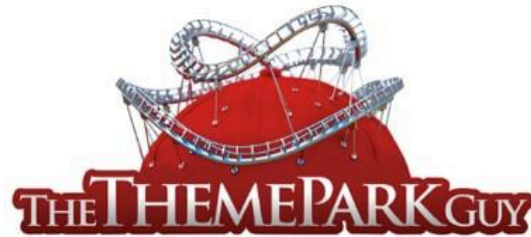
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To enjoy this site you'll need to update your
Flash Player. It's easy, painless and will take
just a moment...

1. Download and install the latest version of Adobe's Flash Player
2. Unfortunately you'll then need to close your web browser
3. Go back to this site after you restart your web browser
4. That's it-have fun!

> Click to download





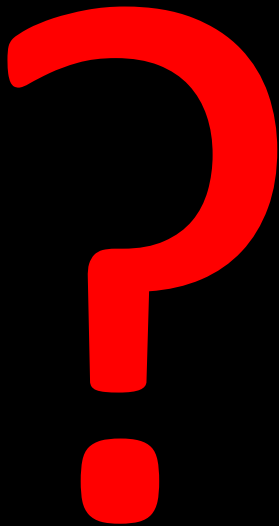
Shame on you for being online on a mobile device! Look up, embrace life in the moment, interact with your immediate surrounding.

If you are always online, and you don't look up and around anymore, what is life all about? Come back to this site when you are in your office or at home.

Your new best friend,

The Theme Park Guy





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NEW FAREHAM RESTAURANT NOW OPEN!
23 May, 2013 - 13:31

FRANKIE & BENNY'S & REAL RADIO RAISE £126,000
24 April, 2013 - 16:19

PENNY-O-METER
WE'VE RAISED £5,627.50
We donate a penny from all of our gift sales for the rest of 2013 to BBC Children in Need.

SHOP F&B
Buy the soundtrack to your F&B experience or our Gift Vouchers make a fantastic present or company treat. >

FIND US
Enter your town or postcode: >

twitter
All the Latest F&B Tweets

PENNIES MAKE POUNDS!
25 March, 2013 - 15:46

THE FRANKIE & BENNY'S WEE WALK
22 March, 2013 - 12:08

Different Sorts of Testing

- Hardware level
- Protocol/ Air Interface
- Applications

Mobile app downloads worth \$26bn in 2013

Karl Flinders

Thursday 19 September 2013
11:13

AA A [print icon] [email icon] [document icon] [Facebook icon] [LinkedIn icon] Share 13 + g+1 1 Tweet 32

The number of mobile app downloads in 2013 will reach 102 billion, with the total value hitting \$26bn, according to Gartner.

This compares with 64 billion downloads worth \$18bn in 2012. In 2013, free apps will account for 91% of the downloads. Gartner predicts that app store downloads will exceed 268 billion in 2017, with free apps accounting for 94.5% of the total.



"We expect strong growth in downloads through 2014, but growth is forecast to slow down a bit in later years," said Sandy Shen, research director at Gartner.

"The average downloads per device should be high in early years as users get new devices and discover the apps they like. Over time, they accumulate a portfolio of apps they like and stick to, so there will be moderate numbers of downloads in the later years," he added.

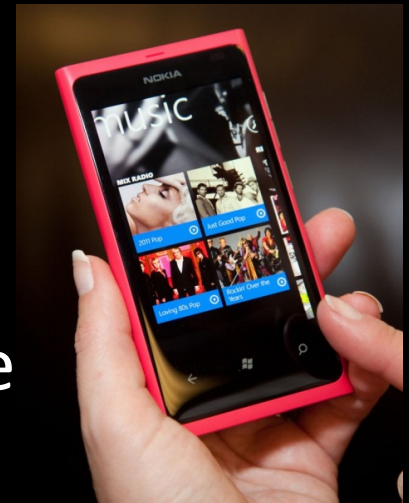
Native or Web?



- Native app:
 - Specifically designed to run on a device.
 - Runs on device OS.
 - Testing needs to include download/ upgrade/ uninstall.
 - Typically needs to be adapted for different devices.
- Mobile website:
 - All or some parts of the software are downloaded from the Web each time it is run.
 - Usually accessible from all Web-capable mobile devices.
 - HTML5 makes it increasingly difficult to separate web apps from native apps.
 - Testing needs to include different mobile browsers.

Interactions

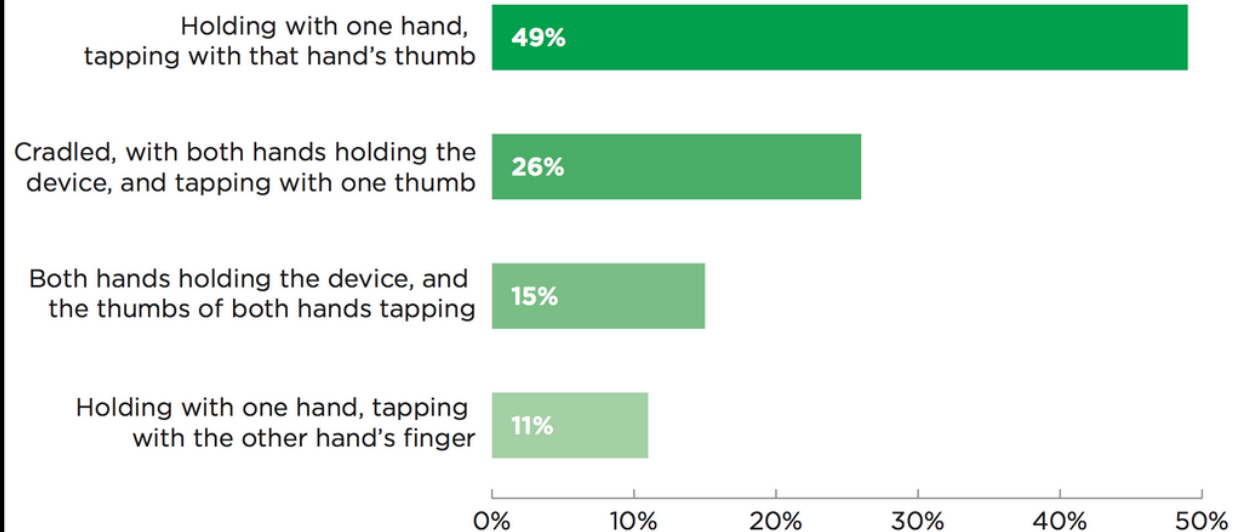
- While your application runs, the phone
 - Talking to the network
 - Working out where you are
 - Maybe receiving calls, texts, Facebook and Twitter updates.
- What happens when you have your application running, and then get a call, and a text, whilst uploading video to YouTube? Test for it and find out.



Usability Matters

- Usability is more important in the mobile world:
 - Smaller screen.
 - More difficult to interact with and typically used one handed.

Q: They're holding it. How are they holding and using it (phone)?



Source: eLearning Guild Research

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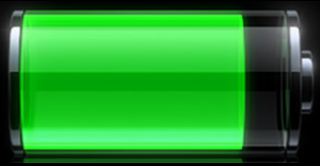
Consistency

- Think about what a mobile user would want.
 - How easy is it to use the application? Do user 'just get it'?
 - How is the look and feel?
 - Does the application or device feel fast?
- Takes advantage of mobile functionality:
 - Location.
 - Mobile search.
 - M-commerce.
- A design that can be viewed on a small screen and in bright light.

Performance



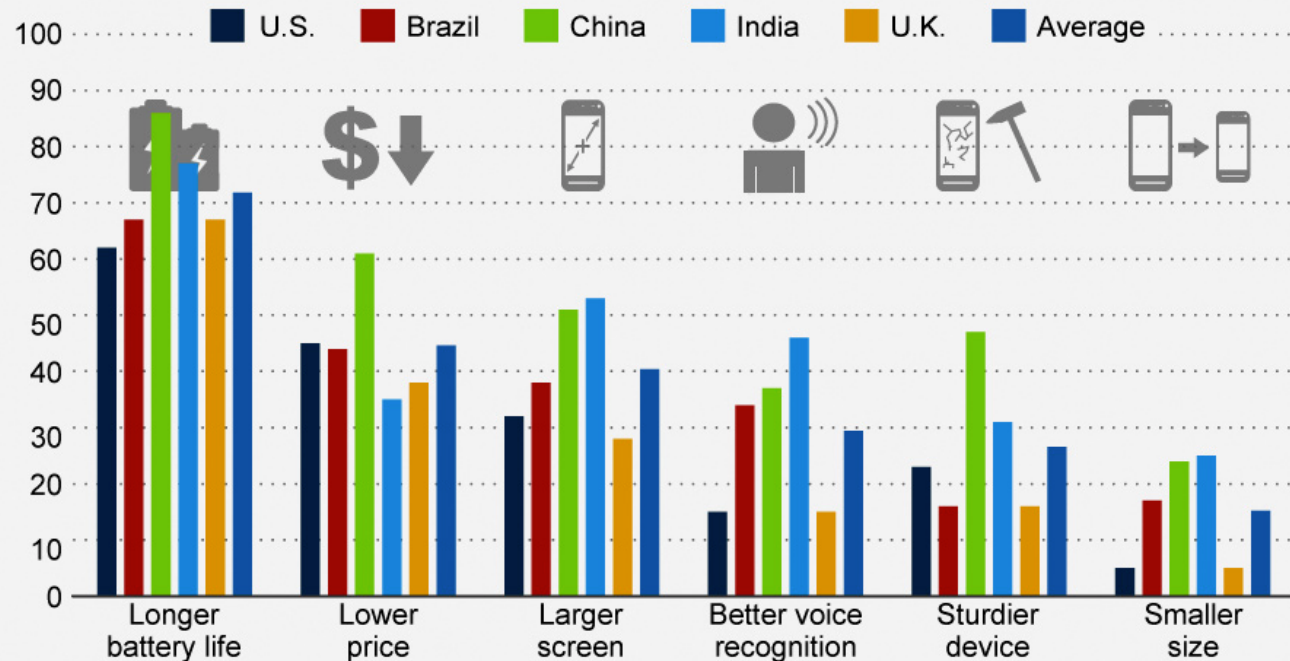
- Limited memory.
- Limited processing capacity.
- Not turned off very often.
- Think of how the application works when network performance is poor or on different speeds (2G/ 3G/ LTE/ Wifi).



Battery Life

Battery Life Is a Key Feature of Mobile Devices

Improvements wanted by mobile device users (% of respondents)





Available on the iPhone

App Store

Apps Stores



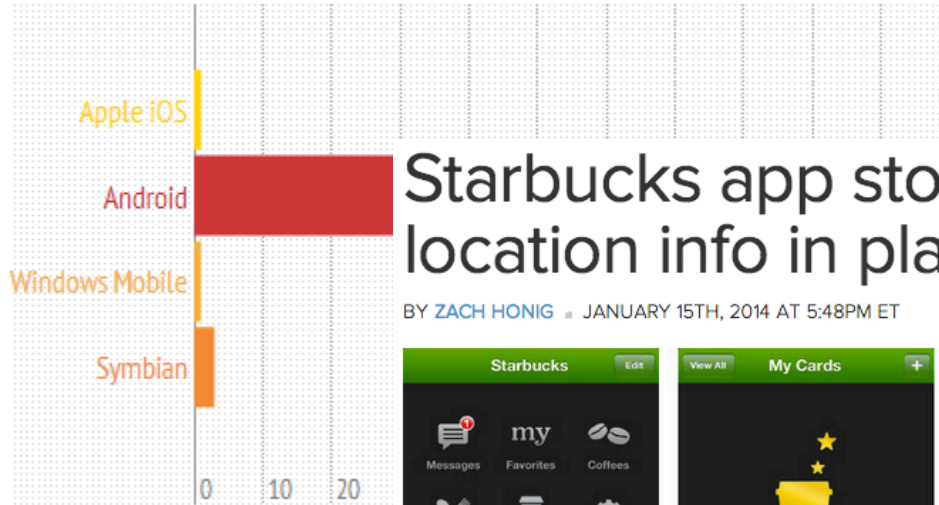
- Different iPhone, Android, and Windows apps are zombies
- One submission is formal



Image Credit: Scott Beale

Security

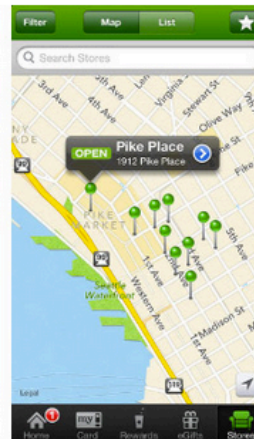
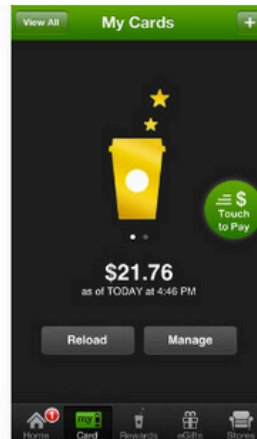
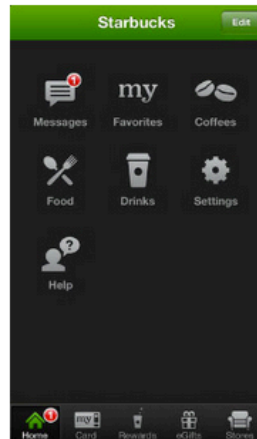
○ Vulnerabilities ● Malware Families



Starbucks app stores log-in credentials, location info in plain text

BY ZACH HONIG ■ JANUARY 15TH, 2014 AT 5:48PM ET

0



If you're concerned about someone getting their hands on your personal data, you'll want to read on -- this latest method's an unlikely culprit. The Starbucks [mobile-payment app](#) is reportedly saving user data, including email addresses, passwords and even your GPS location in plain text. Theoretically, anyone with access to your

engadget MINI

"please don't walk around the mall with these in your ears people"

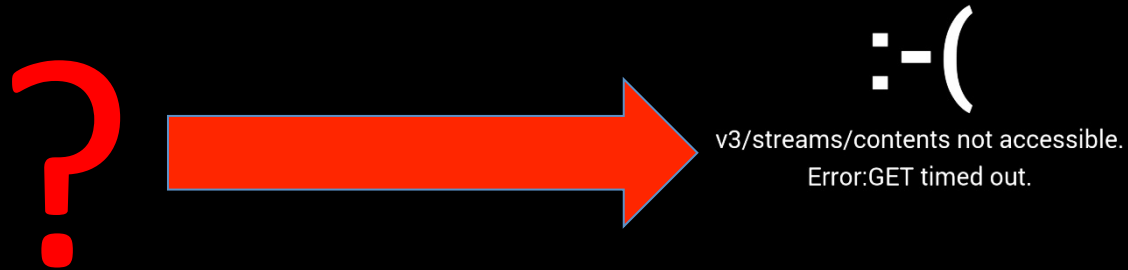
— derekpurdy

Engadget Comments, re: Jawbone [SHARE](#) 18m



Sensible Error Messages

Particularly when network / data isn't available



Don't Just Test Here...



On Here, and At Here...



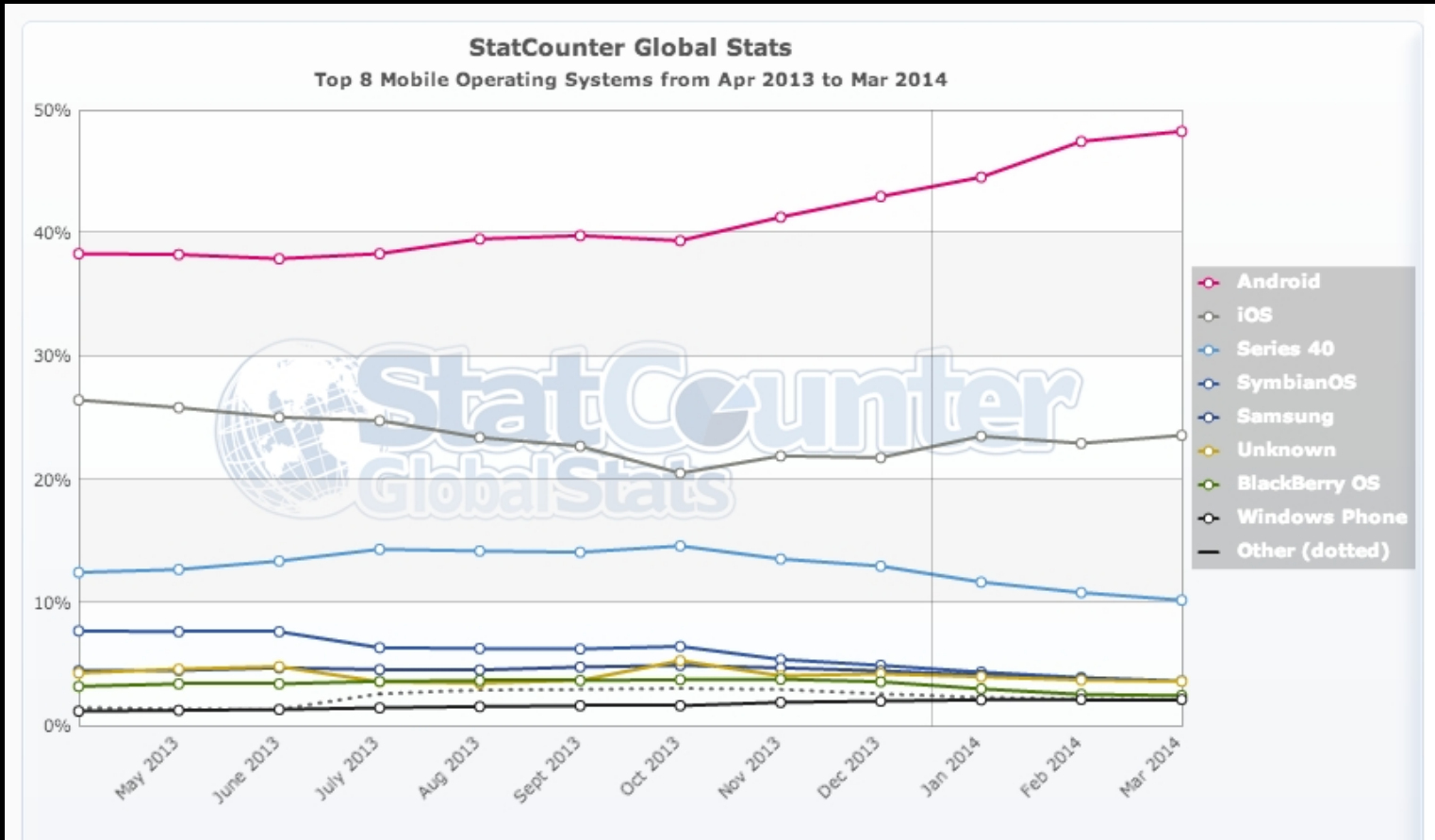
Out Here...



In Here...



Different OS's



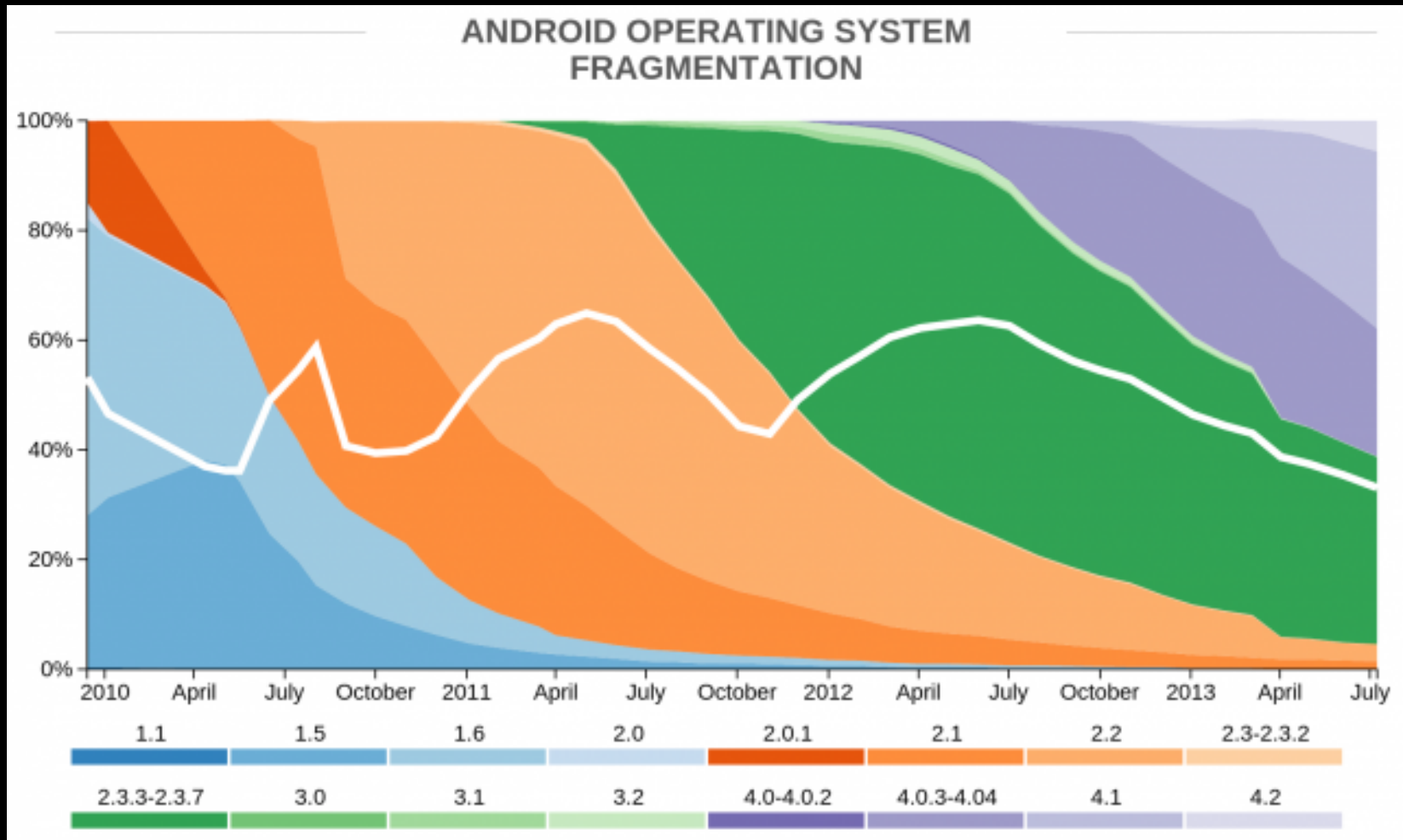
Source: <http://gs.statcounter.com>

iOS Adoption - 😊



Source: mixpanel.com

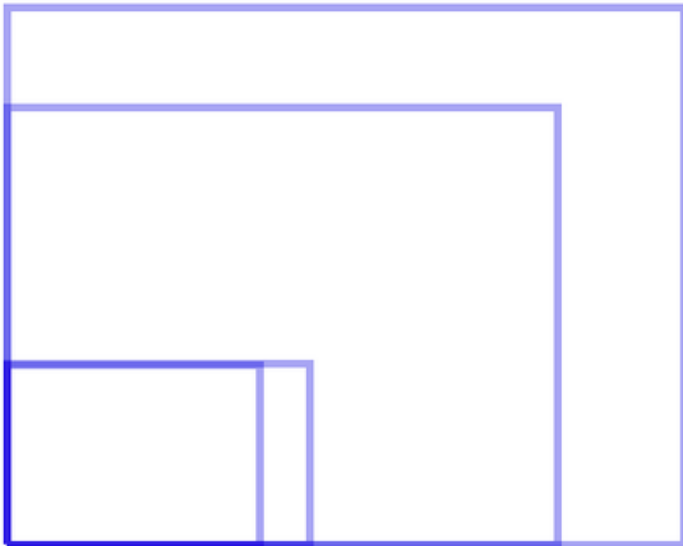
Android versions - ☹️



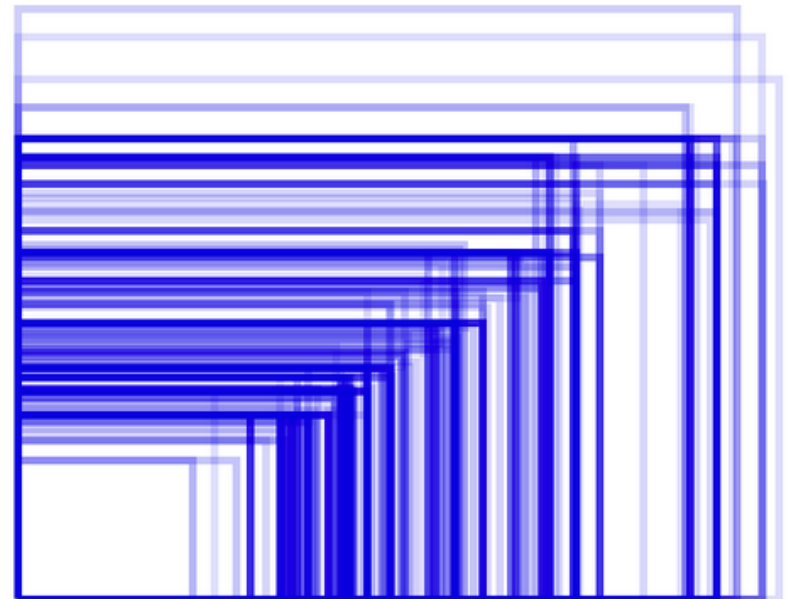
Source: <http://opensignal.com/reports/fragmentation-2013/>

Screen Sizes

iOS device screen sizes



Android device screen sizes

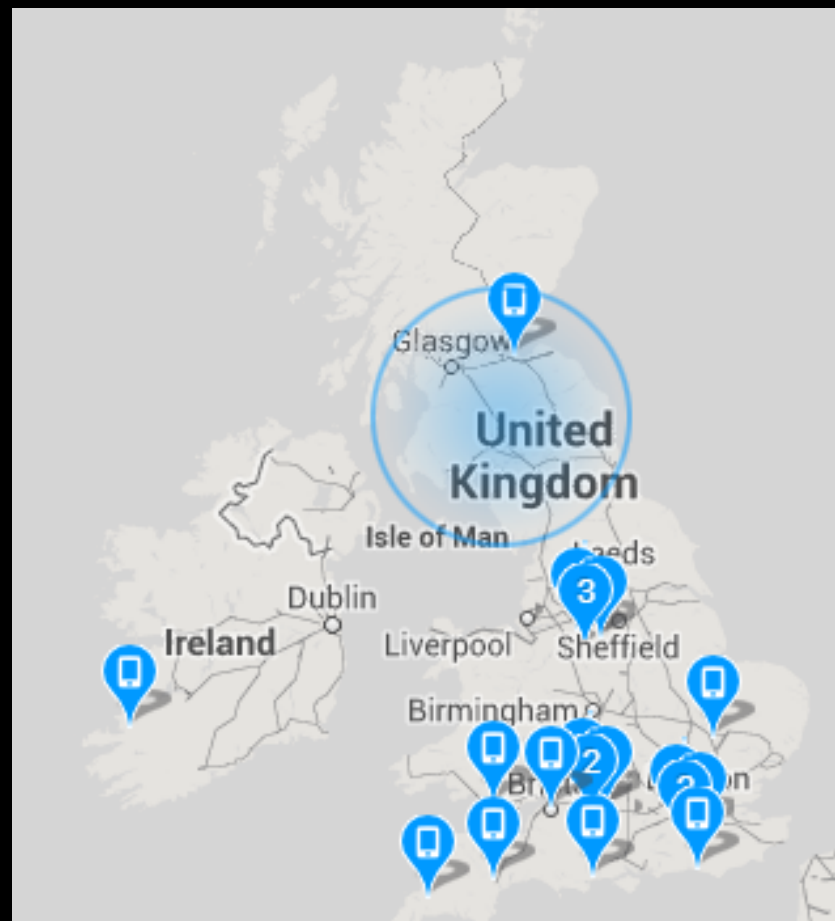


Where do I get all the devices from?

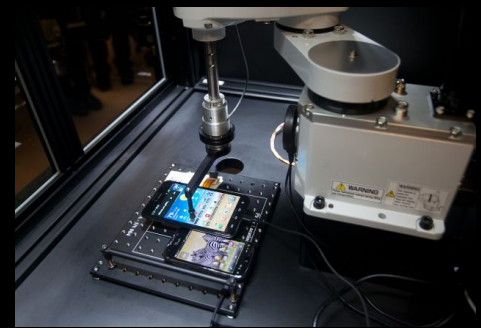
- Don't use them at all – simulators or user agents.
- Buy them.
- Rent them.
- Borrow them.
- Use a cloud based service (Perfecto Mobile, DeviceAnywhere).

Open Device Labs

- Borrow devices, normally for free.
- <http://opendevicelab.com>
- Open Device Labs = shared community pools of internet connected devices for testing purposes.



Automation



- The holy grail to solving the fragmentation testing problem?
- Caveat – mobile test automation is like desktop test automation 6 years ago.
- You may want to consider pushing for more unit and integration tests before spending time on mobile UI automation.

Understanding the User



- In app analytics.
- Website analytics.
- User persona's.
- Similar applications.



So.....



Mobile Test Strategy – Top 5 Tips

1. Understand the potential user:
 - Which platforms and devices will they use?
 - How will they use the app or website?
2. Understand what OS versions are being used and when new ones are coming.
3. Test using simulators and real devices.
4. Understand the cost of automation:
 - It is where desktop automation was 6 years ago.
 - Best combined with extensive unit and integration testing.
5. Use an exploratory approach to manual testing:
 - Mobile device projects are typically short.

So...



- Mobile is huge.
- Users are more emotionally attached to their phones than they are to their PCs.
- Testing applications is the easiest route into the industry.
- A mobile test strategy should not merely be a copy of a desktop test strategy.

“Be proud, your work will soon
be in the hands of millions”



Questions?



Stephen Janaway



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