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.

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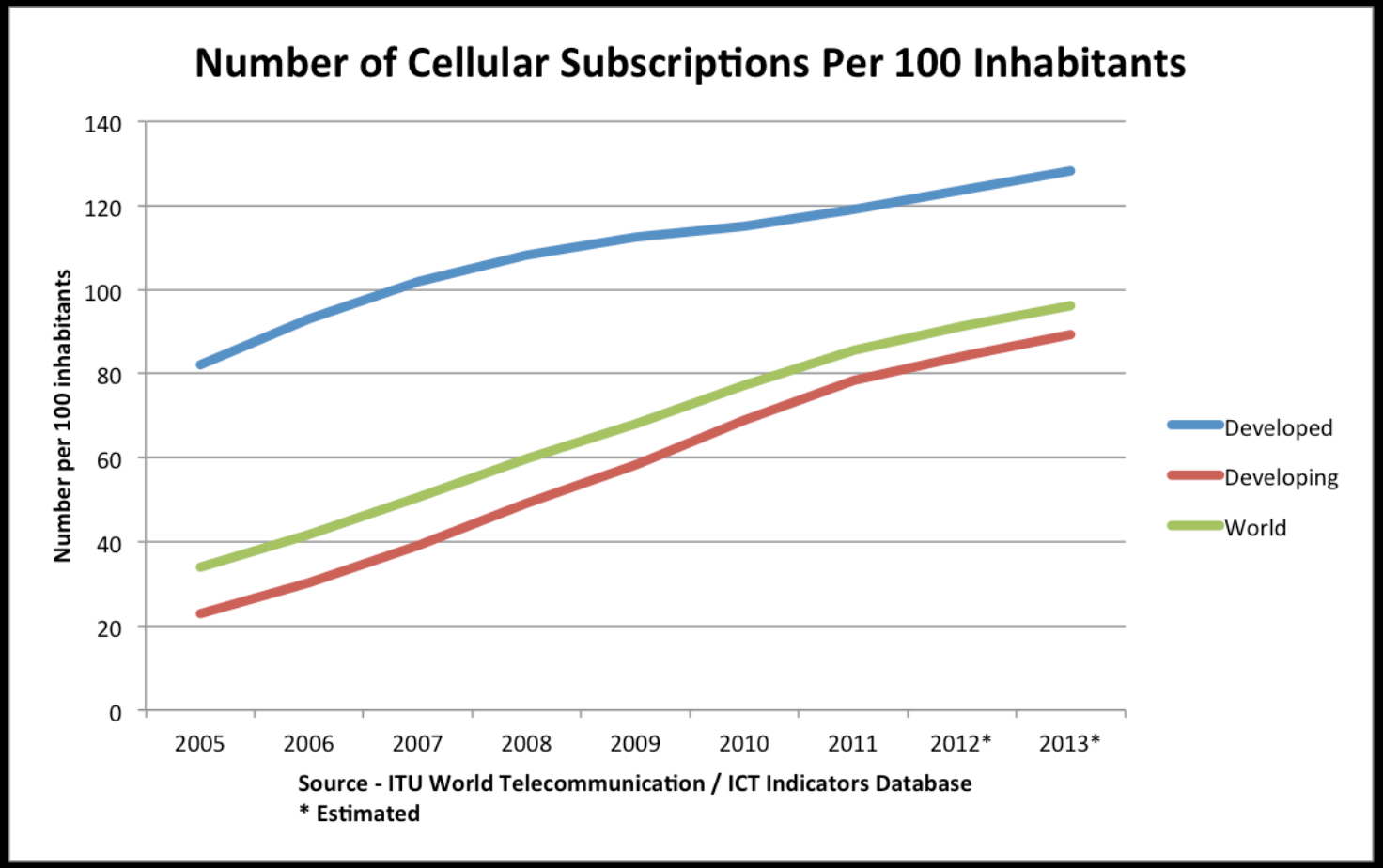
@stephenjanaway

This Presentation

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

So Why Mobile?



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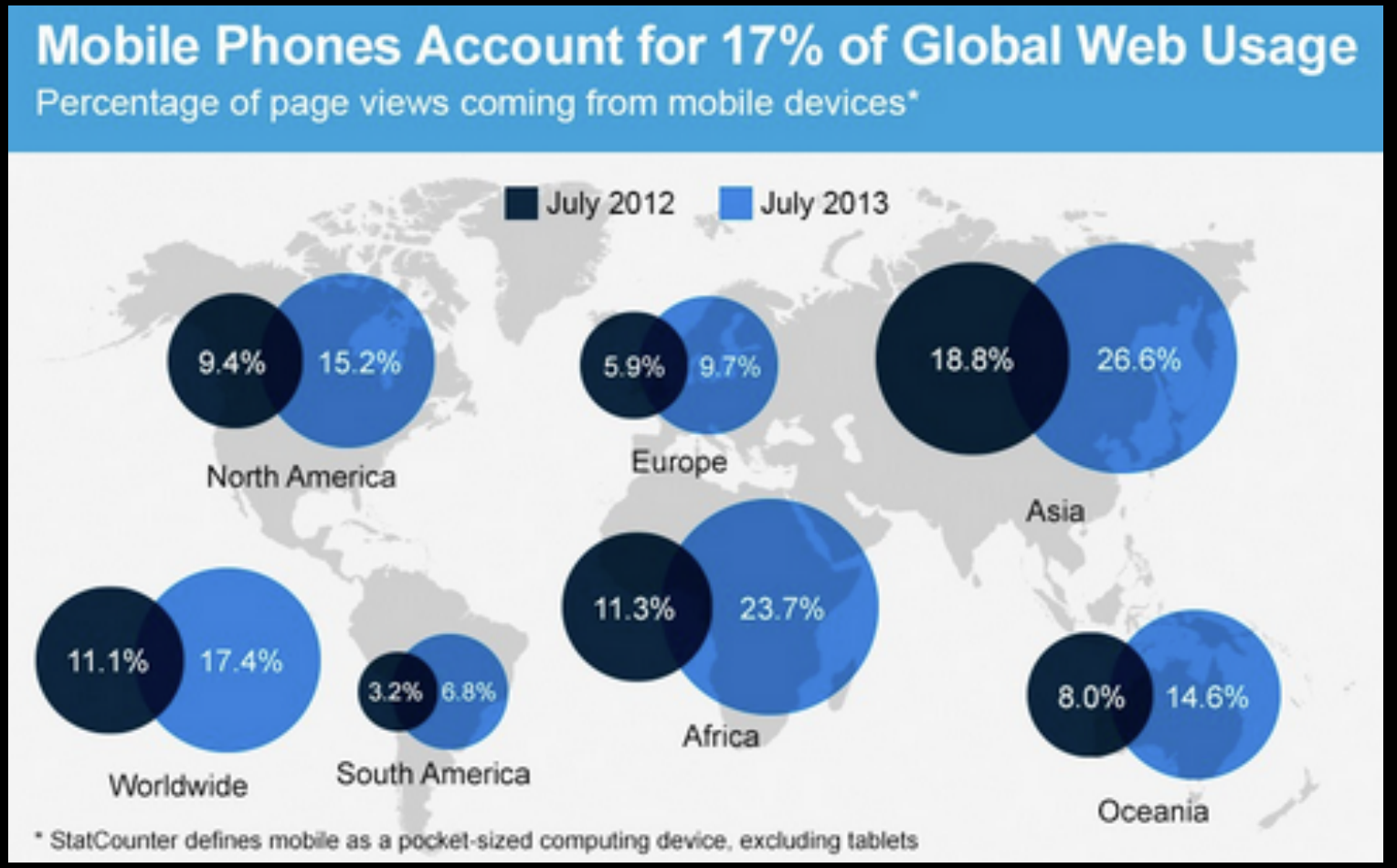
So Why Mobile?



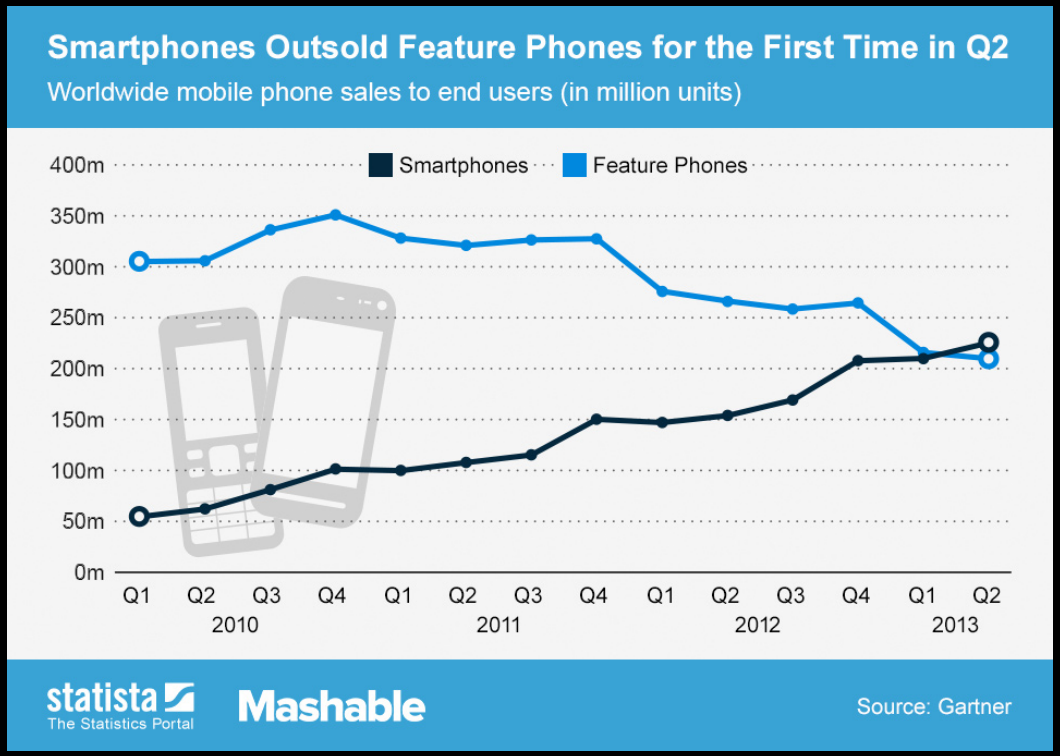
The mobile market is huge

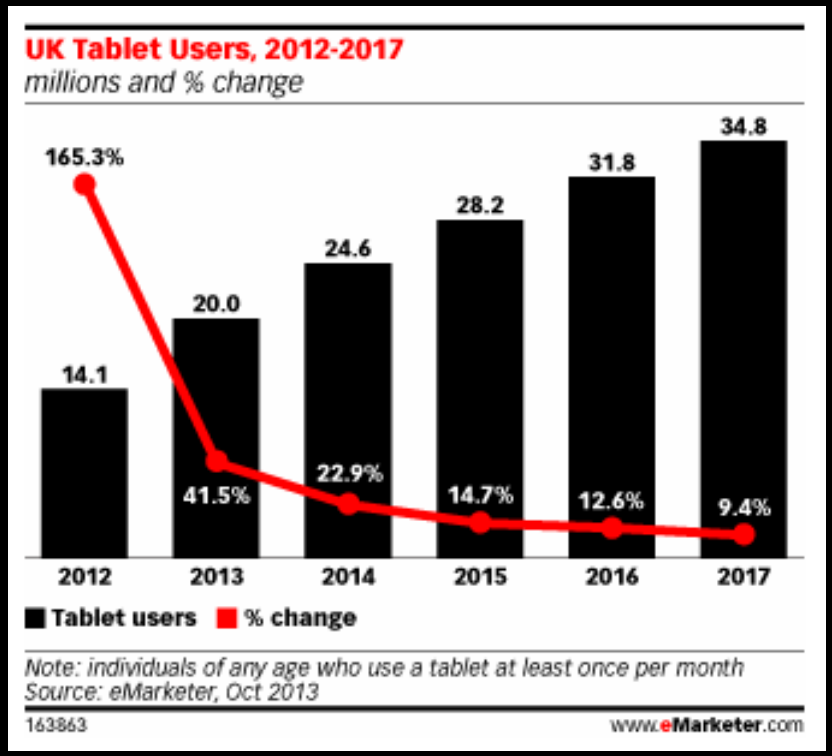
Worldwide Mobile Phone Sales to End Users by Vendor in 2013 (Thousands of Units)

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





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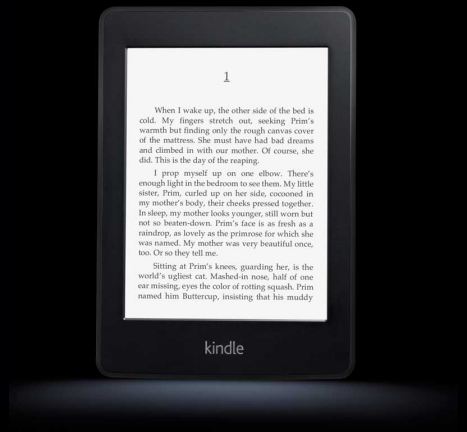
SPORTS
watchman
SONY
L-500
VIDEOSYNCRACY
Betamax
SONY

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.

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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…

NOKIA

I’m lost
Le Grand Large
NOKIA

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

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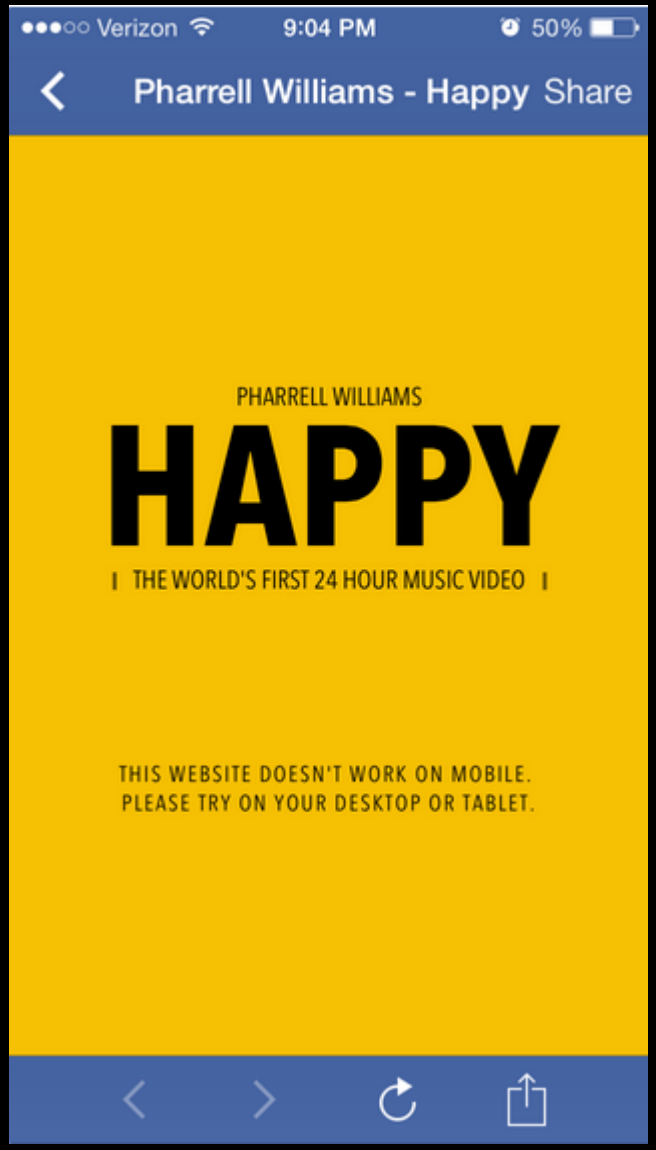

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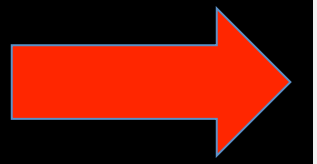

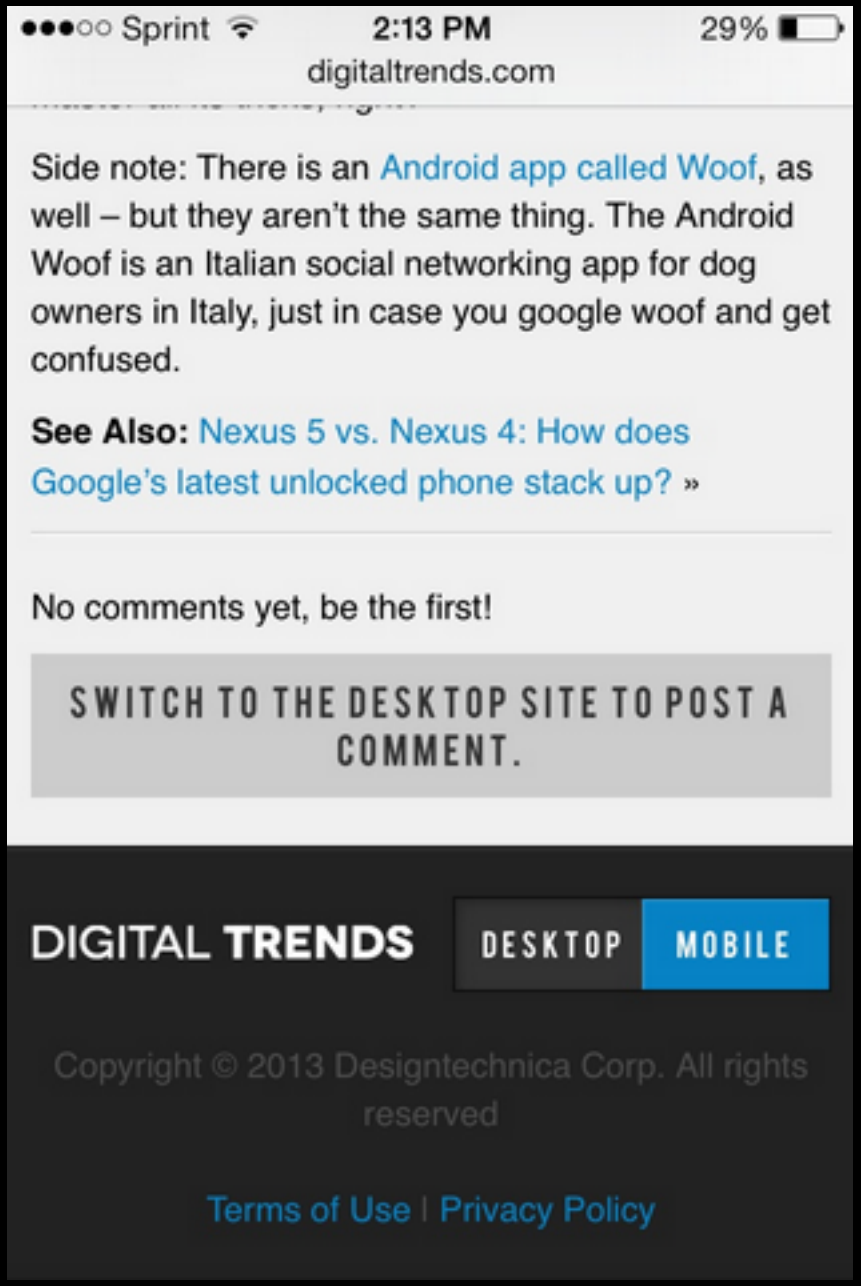

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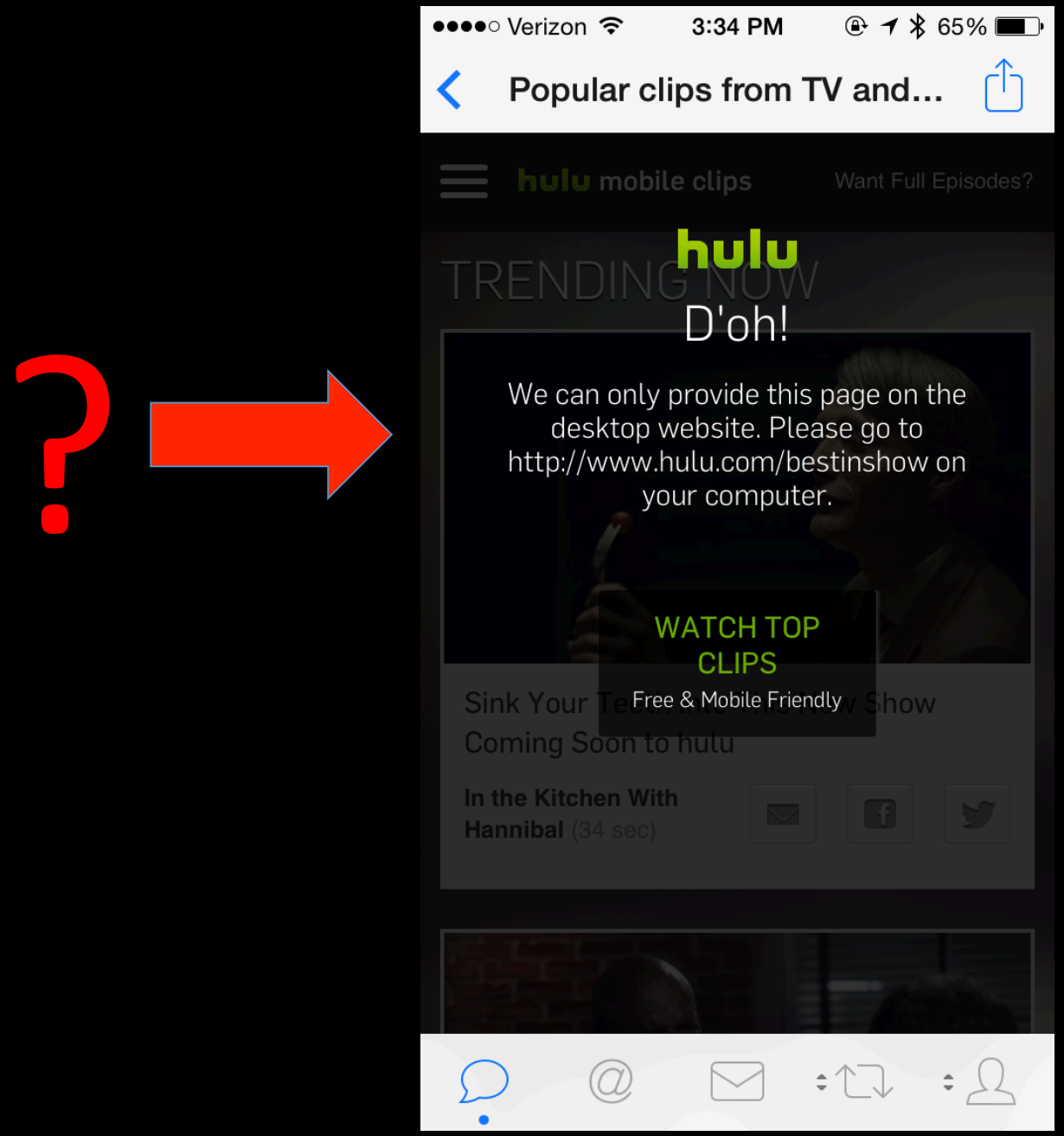

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thethemeparkguy.com

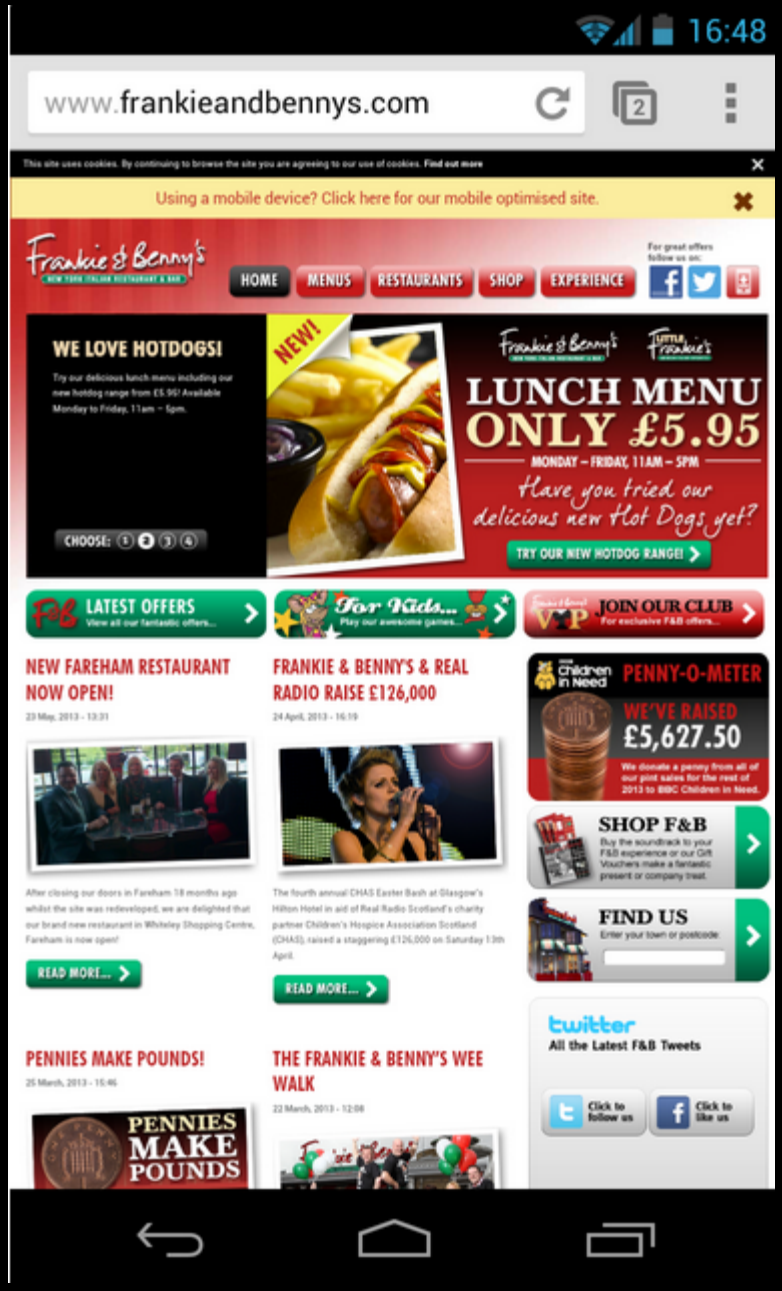
THE THEME PARK GUY

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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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

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.

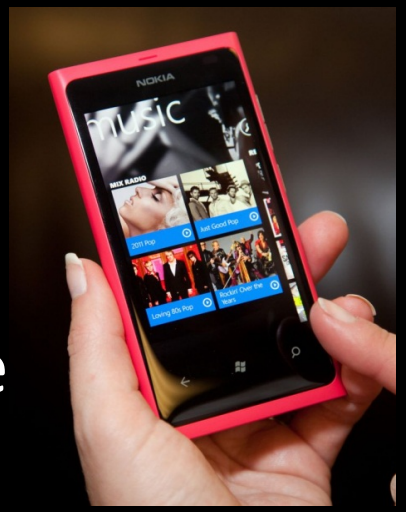
"The average downloads per device should be high in early years as users get new devices and discover the apps they like. Over time, they accumulate a portfolio of apps they like and stick to, so there will be moderate numbers of downloads in the later years," he added.

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

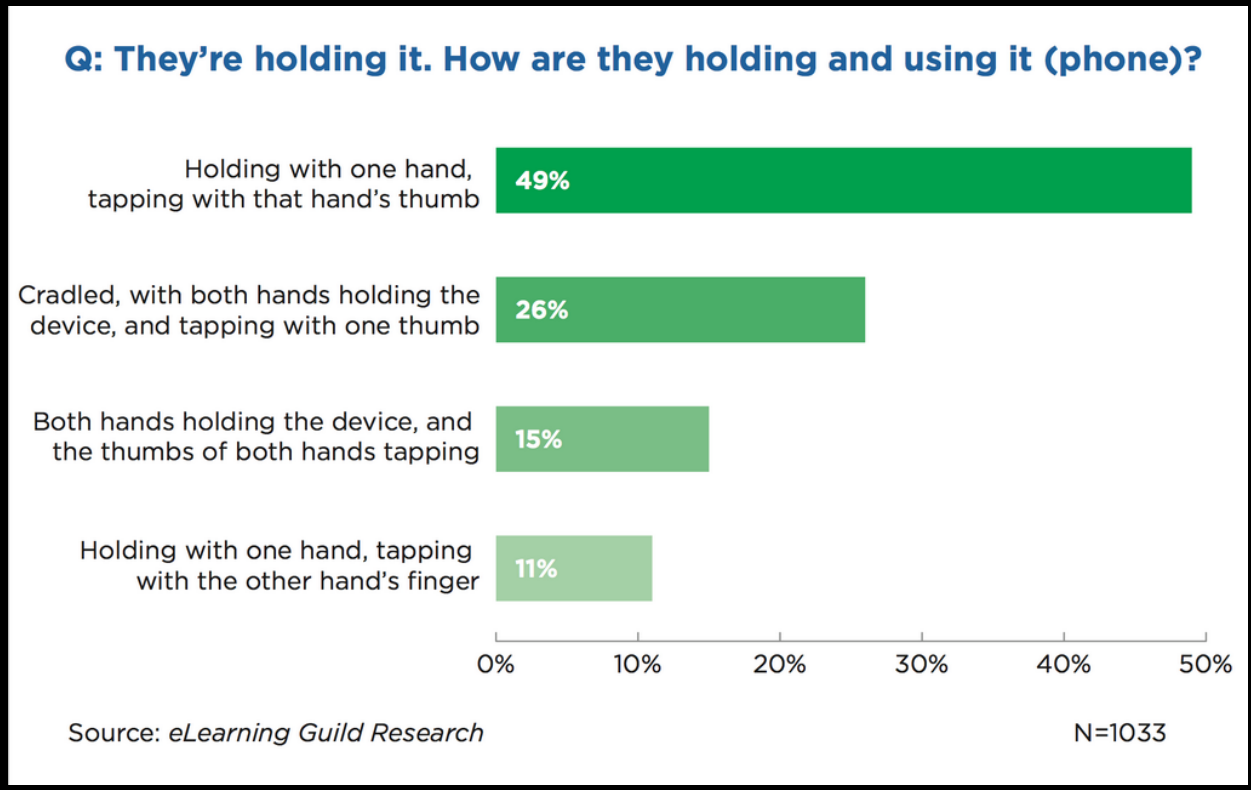


- While your application runs, the phone
  - Talking to the network
  - Working out where you are
  - Maybe receiving calls, texts, Facebook and Twitter updates.

- 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.



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.

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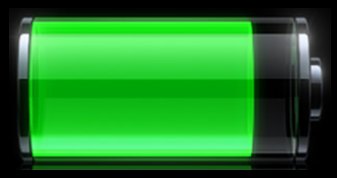
Performance

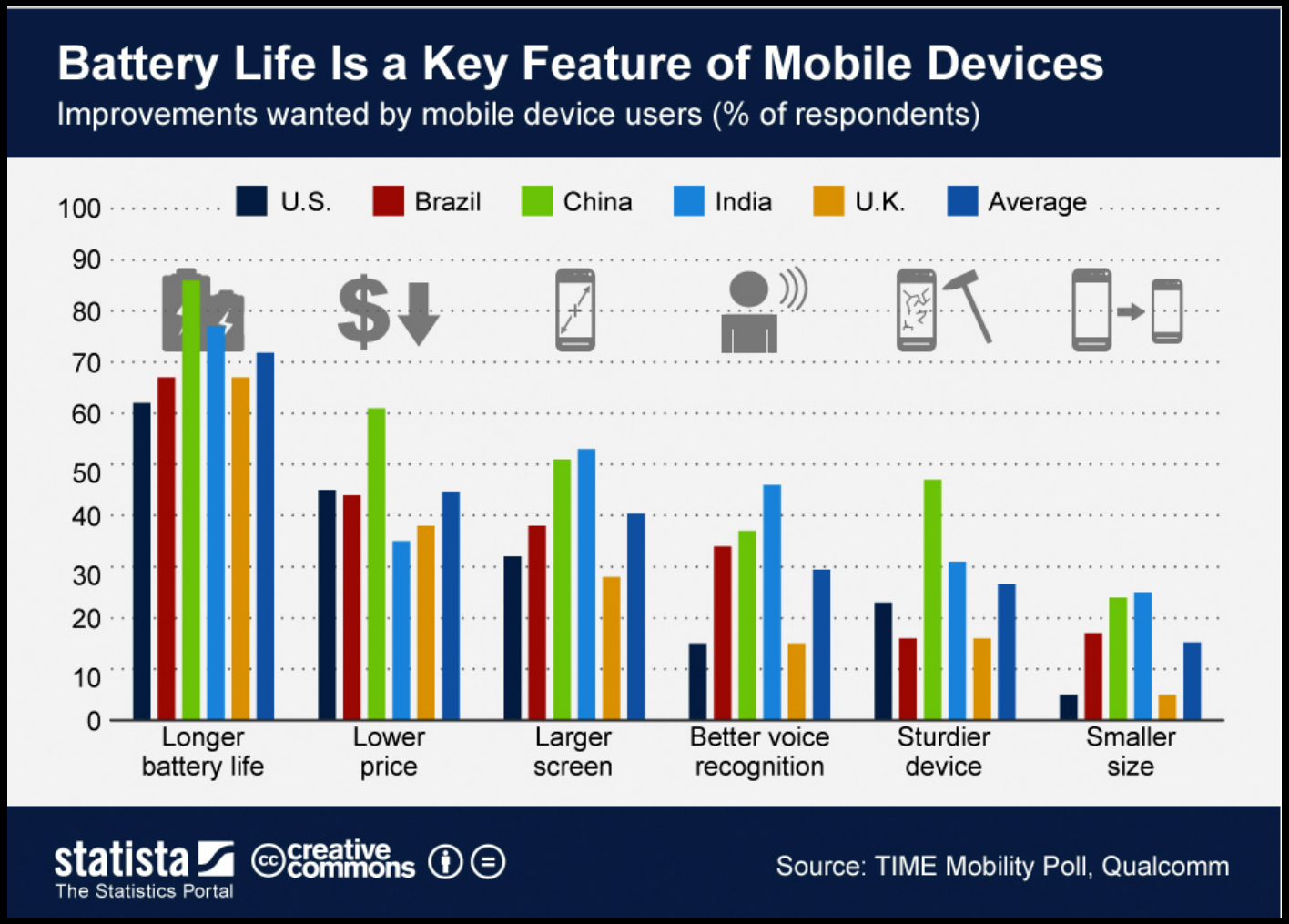
- Limited memory.
- Limited processing capacity.

- 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



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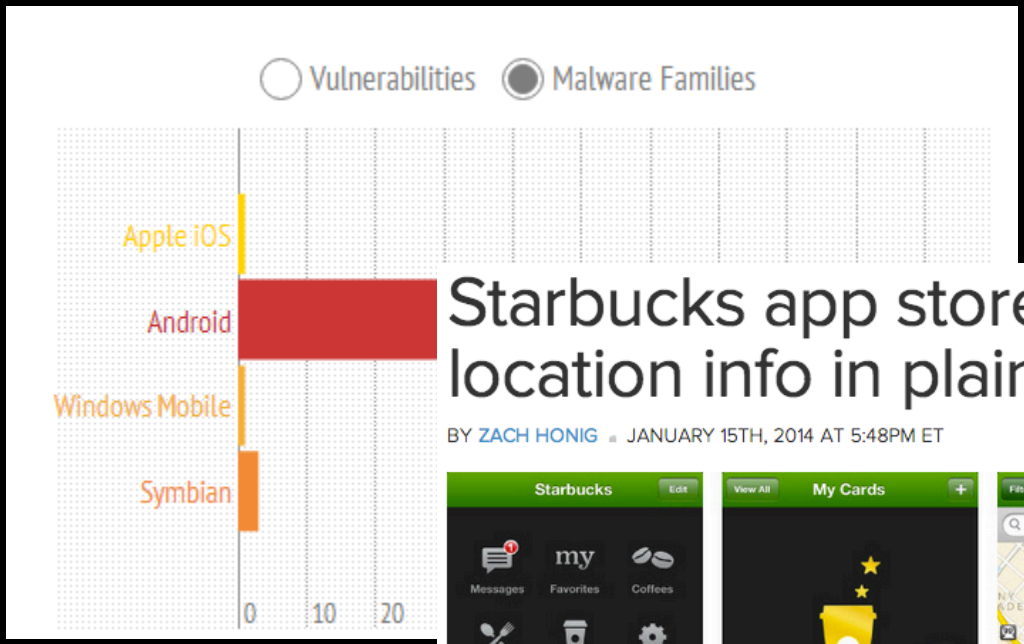
Apps Stores

- Diffe a.
- One ons are subn formal testi

700K of the 1.2M apps available for iPhone, Android, and Windows are zombies

Image Credit: Scott Beale

Security



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

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

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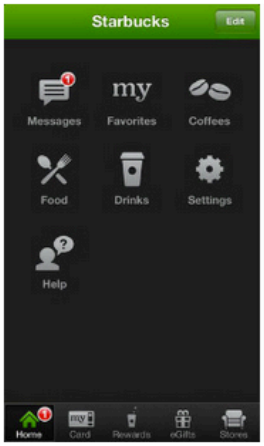
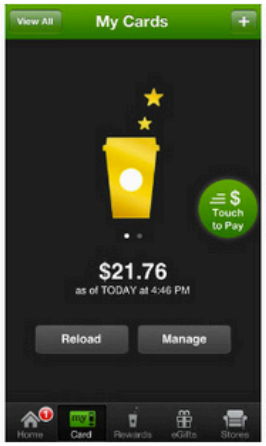
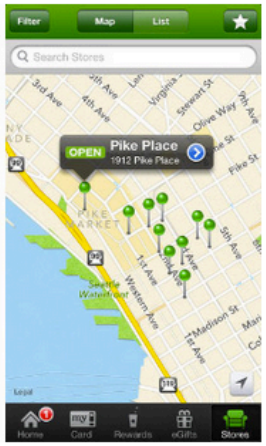
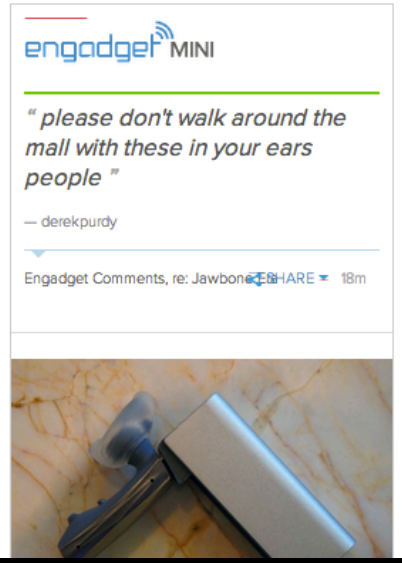




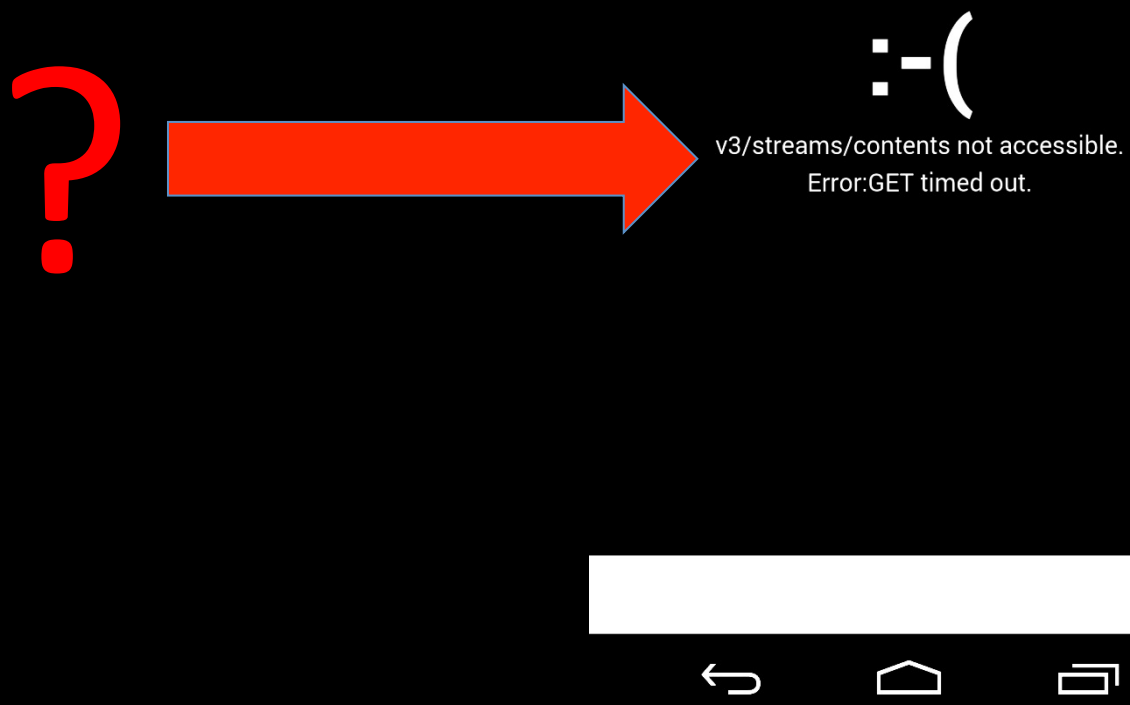


If you're concerned about someone getting their hands on your personal data, you'll want to read on -- this latest method's an unlikely culprit. The Starbucks mobile-payment app is reportedly saving user data, including email addresses, passwords and even your GPS location in plain text. Theoretically,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



Sensible Error Messages

Particularly when network / data isn't available



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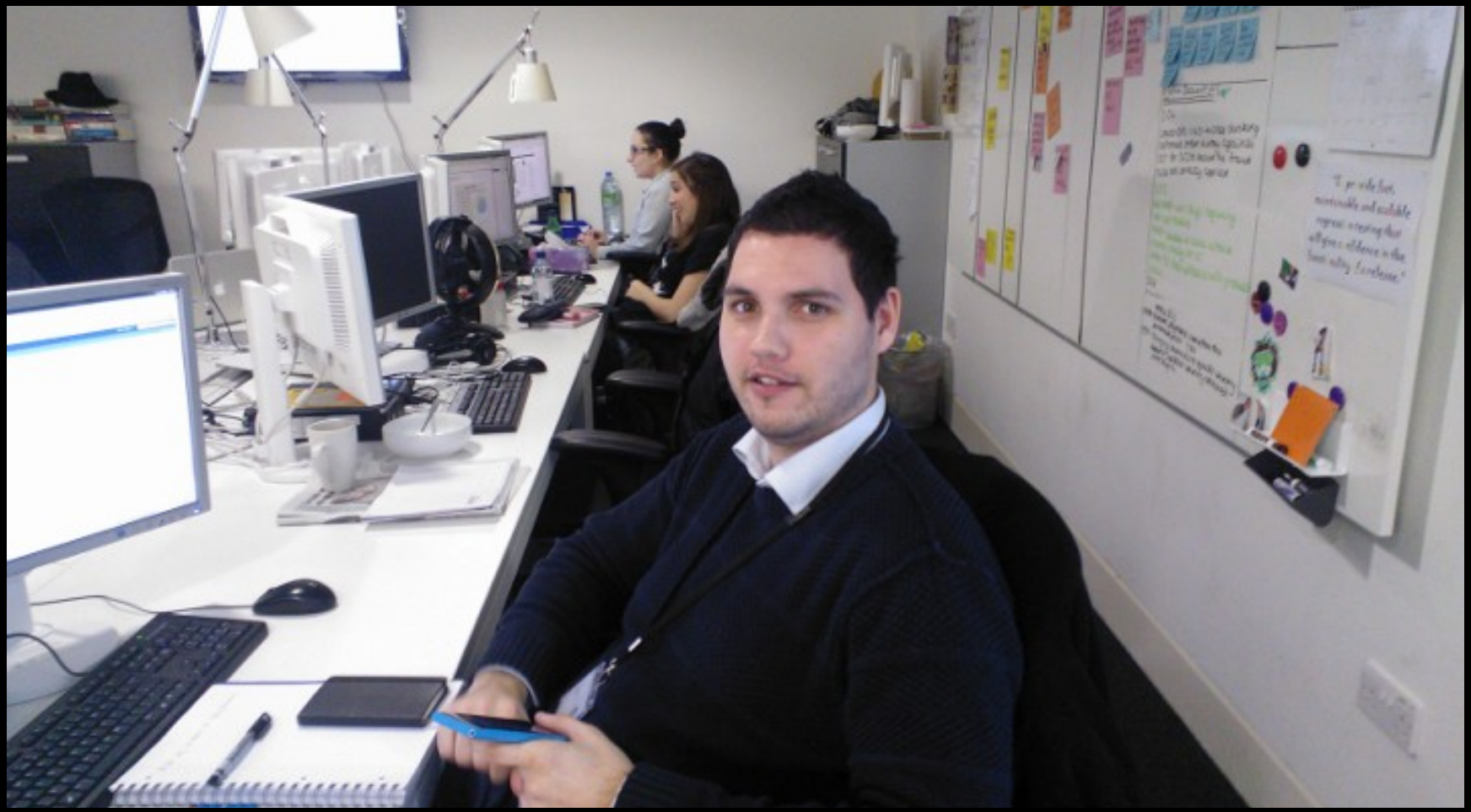
Don’t Just Test Here…



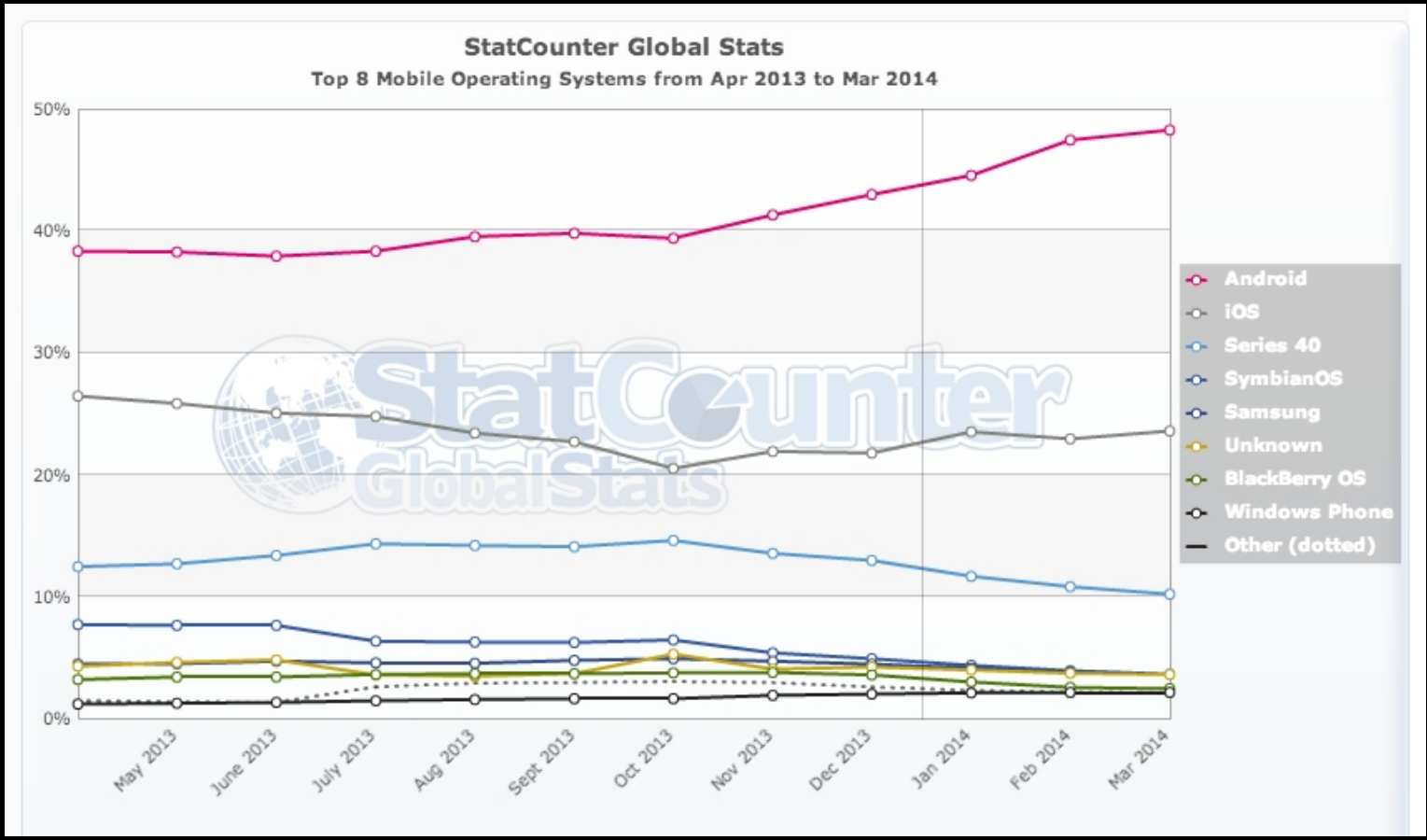
On Here, and At Here…

Out Here…

In Here…

Panasonic
10:10
AUTO REHEAT
Curry Chinese
Pasta Casserole
AUTO COOK
Fish Veg
Jacket Potatoes
Potato Products
Chicken
Pizza
Micro Power
Grill 1-2-3
Convection
Combination
Chaos Defrost
Timer
Clock
Up
Down
Stop/Cancel
Start
NN-CT552W
INVERTER
SLIMLINE COMBI

Different OS's



Source: http://gs.statcounter.com

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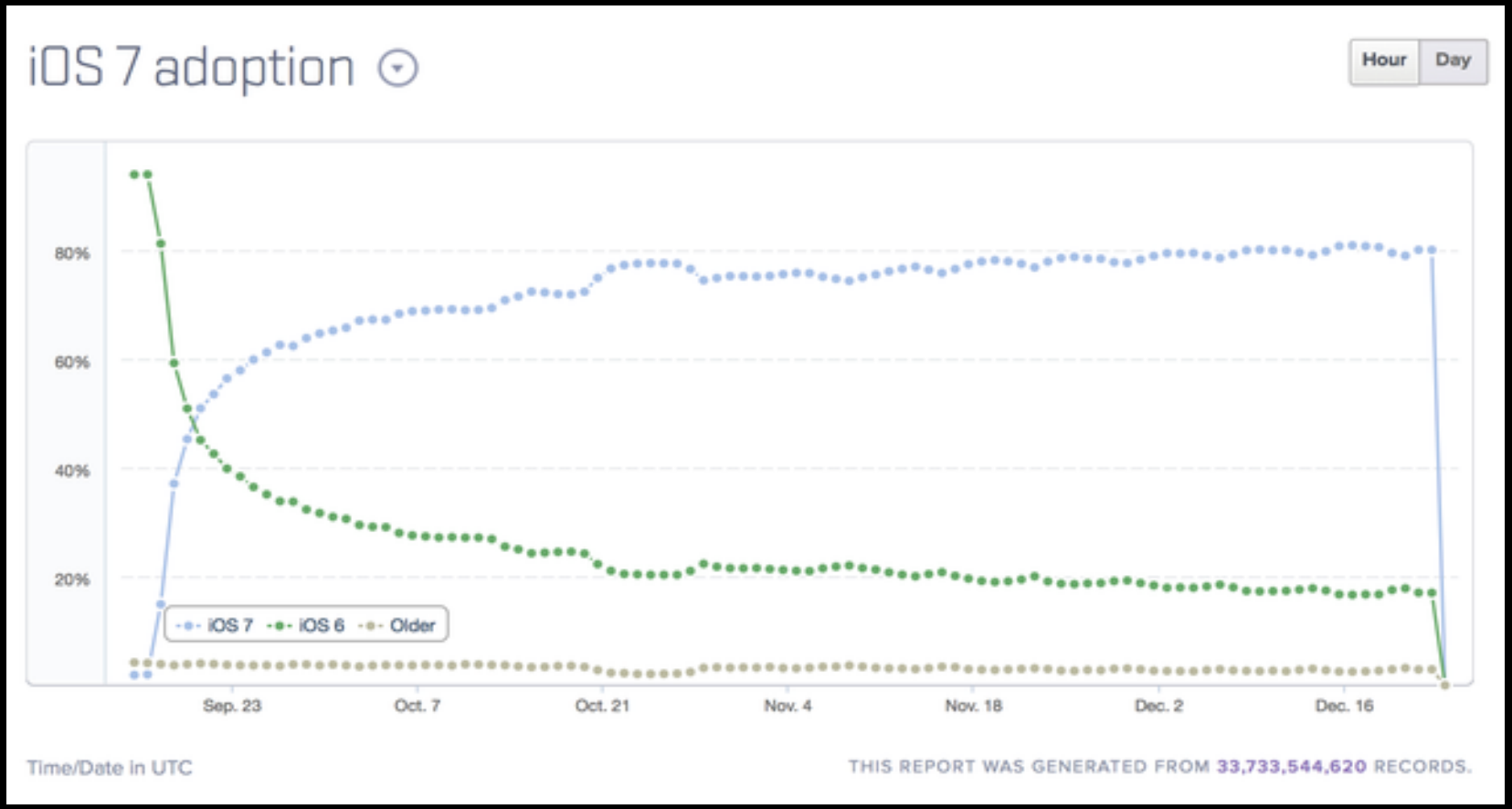
iOS Adoption - ☺



Source: mixpanel.com

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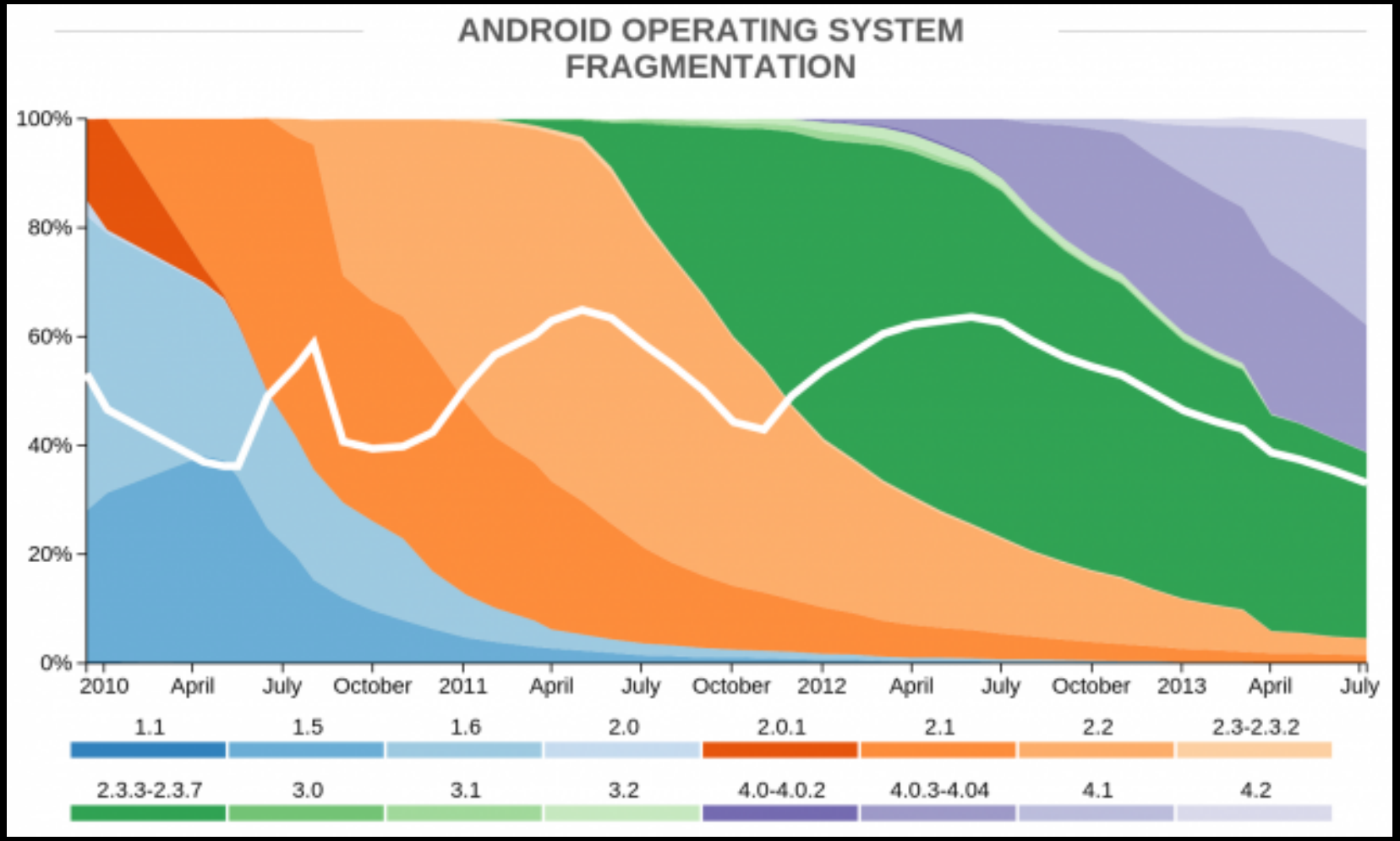
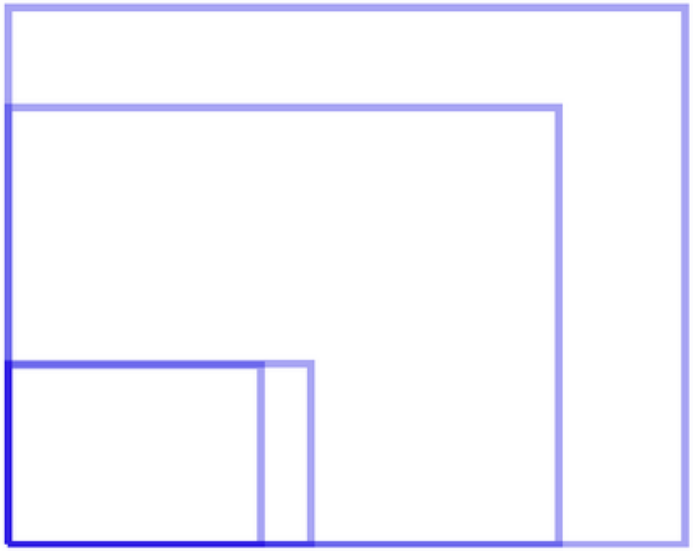
Android versions - ☹



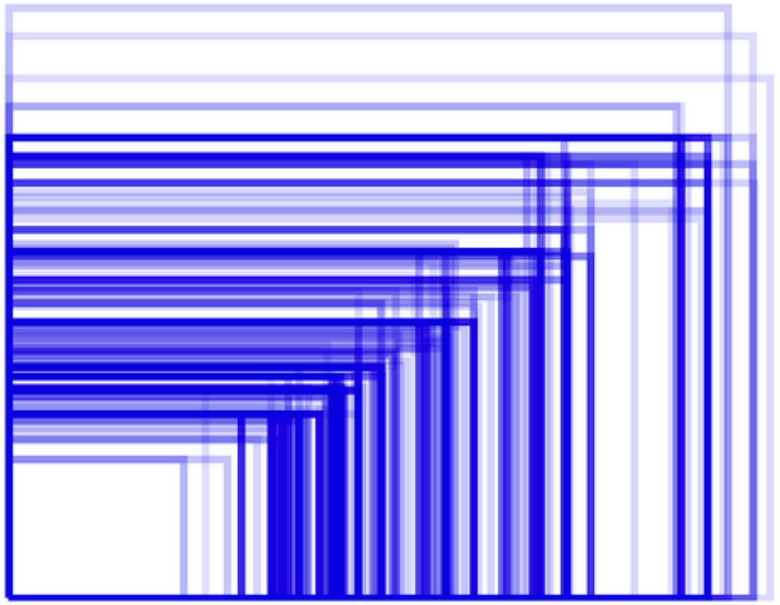
Source: http://opensignal.com/reports/fragmentation-2013/

Screen Sizes

iOS device screen sizes



Android device screen sizes



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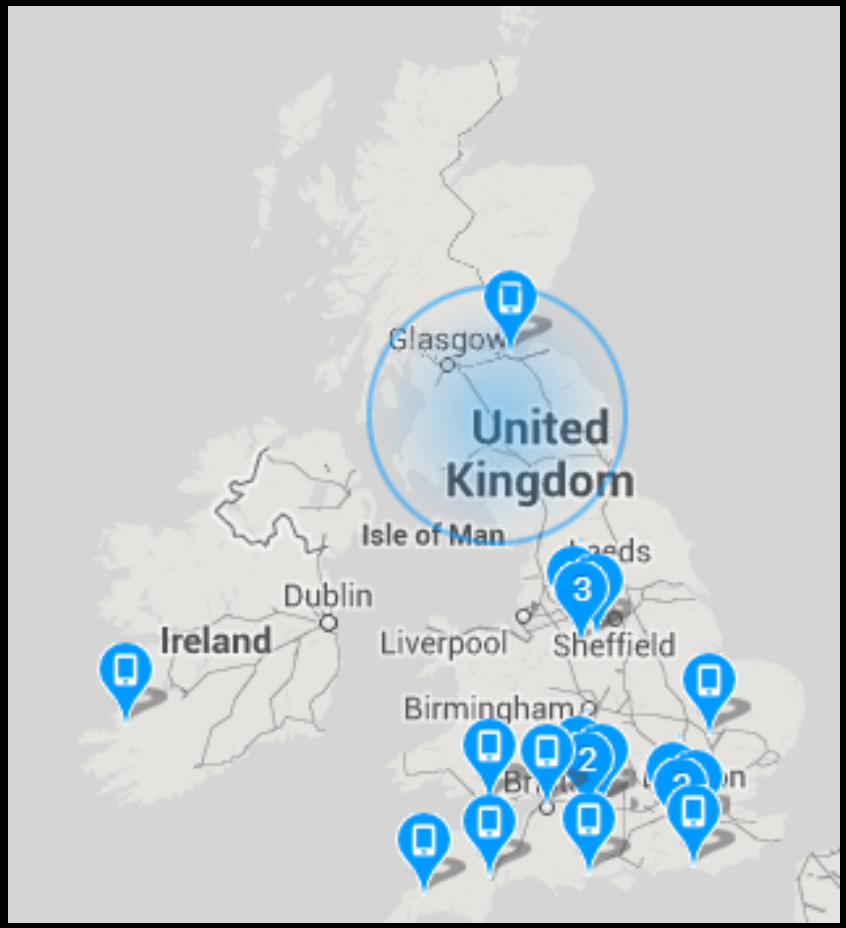
Where do I get all the devices from?

- 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.



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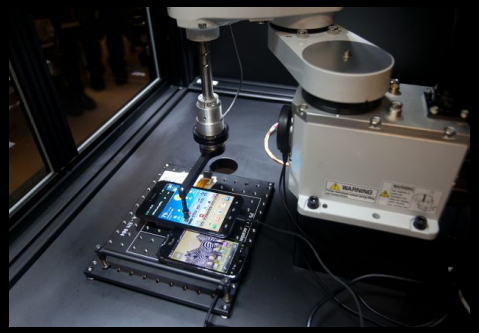
Automation



- 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.

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Understanding the User

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

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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.

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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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