Capgemini & Experitest Co-webinar:

A secure Mobile Testing Cloud Resource- Accessible Anytime Anywhere

Dec 2014

Agenda

1. Part I- Designing a Secure Device Lab (20 min)
2. Part II- Remote Device Lab In The Real World (15 min)
3. Demo (10 min)
4. Case study (5 min)
5. Q&A (10 min)

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Part I

Designing a Secure Device Lab

Speaker: Costa Avradopoulos, Capgemini, Mobile Testing Practice Leader, NA

Agenda

1. Mobile Testing Challenges
2. Defining Lab Requirements
3. Building a World Class Lab

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Mobile Testing Challenges

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How Do You Define Mobile?

1 | ABLE TO MOVE OR BE MOVED FREELY OR EASILY.

2 | OF OR RELATING TO CELLULAR PHONES, HANDHELD COMPUTERS, AND SIMILAR TECHNOLOGY.

Smartphones, Feature phones, tablets, laptops, ruggedized devices, medical devices, wearables, kiosks, ATMs…




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Our World Quality Report 2014 Snapshot

KEY FINDINGS:

- The QA function is adapting to business demands by streamlining and centralizing its structure, to achieve efficiency and cost optimization
- Significant investment in Test Environments may also be undermined by a lack of specialist expertise
- Testing's late engagement in the application delivery lifecycle and its reliance on basic IT metrics is possibly applying a negative brake on this increasing maturity
- Mobile testing has increased in importance as a key discipline within the function, but lacks specialized methods, expertise and environment

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Our World Quality Report 2014 Snapshot

KEY FINDINGS (Cont.):

- Cloud adoption and cloud-based testing has slowed as organizations continue to manage concerns regarding data security and performance
- A higher proportion of overall IT budget is being invested in testing and focused on transformation projects
- Agile development is now widely adopted but still gives rise to problems for testing, particularly in relation to specific methodologies and expertise

NOTE: Mobile Testing is a dedicated section in this report

Download here: WorldQualityReport.com

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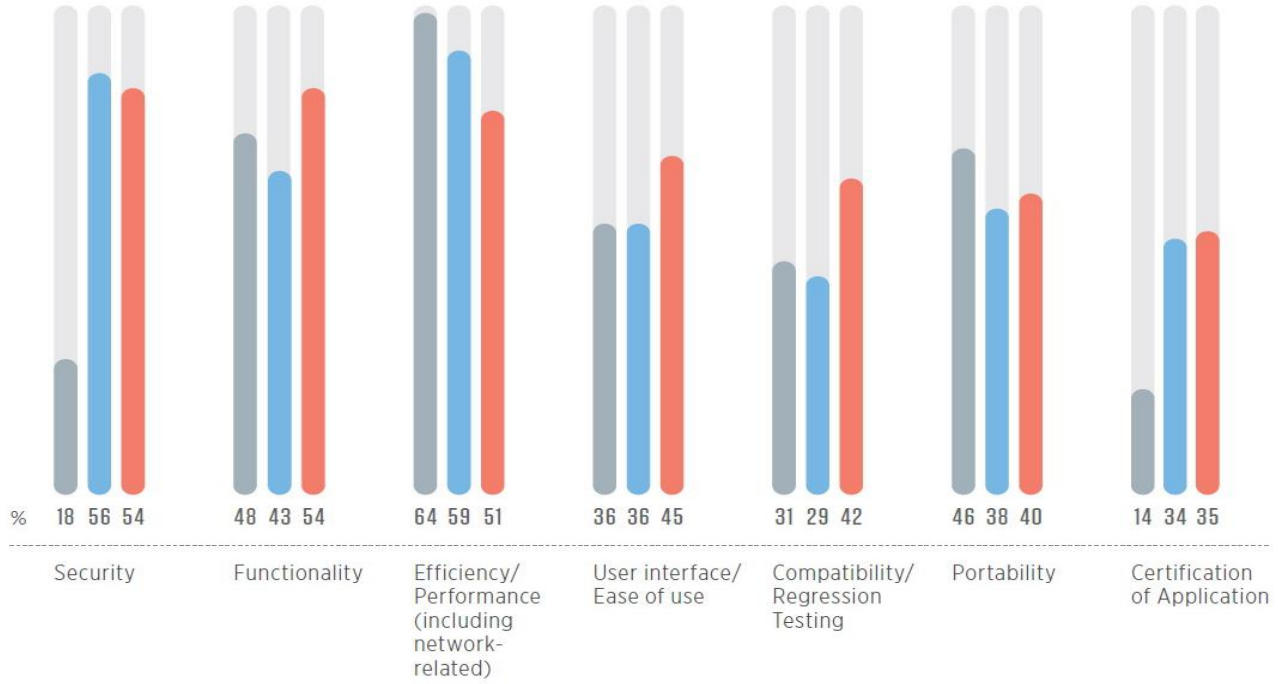
Mobile Testing Areas of Focus - 2014

SECURITY, FUNCTIONALITY AND PERFORMANCE REMAIN THE TOP AREAS OF FOCUS FOR TESTING OF MOBILE APPLICATIONS

FIGURE 11



Base: 1337 respondents

Source: World Quality Report, 6th edition

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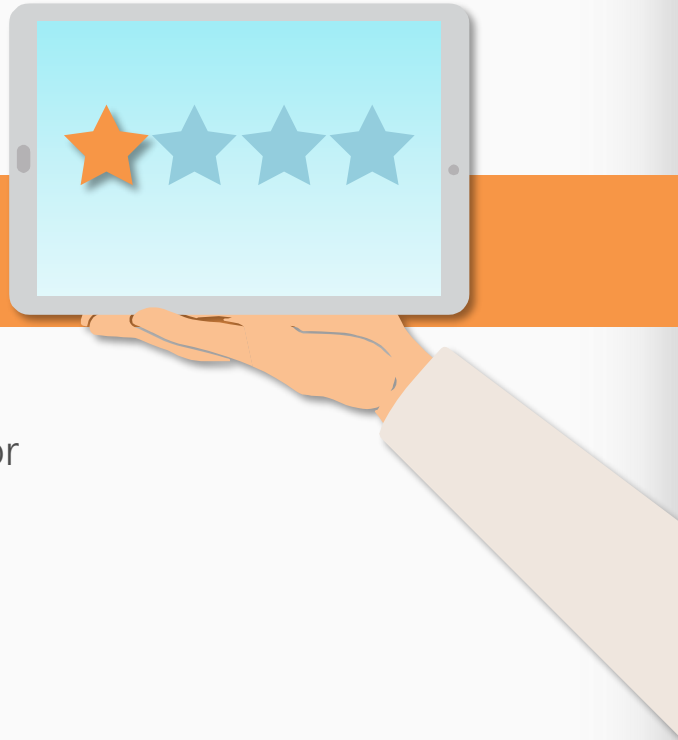
The Cost of Poor Quality Escalates

OVER **65%** of all apps have a 1 star rating or less



Top quality issues in last 12 months exceed $2 Billion in losses:

- Security: breach at major retailer ($570M loss), Nov 2013
- Performance/Outages: Top 3 social media company – 5 major outages in 2014
- Security: breach at major retailer ($500M loss), 2014
- Functional: Top 3 bank, double payments issue

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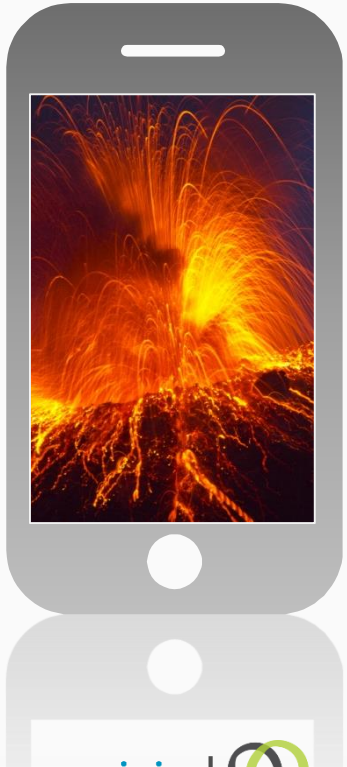
Impact of Failure

Cost of Poor Quality is *Accelerated* with Mobile



Visibility is far greater, exposing your brand & reputation:

- Social Media makes failures exponentially more visible, with potential to go viral
- App store is a public report card - you cannot hide or cover up poor ratings

A plethora of choices for customers = competitive risks

- Near zero switching costs for customers
- 60% of users will abandon your app/site if does not load in 3 seconds
- Less than half will return to give a slow app/site a 2nd chance

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Mobile Testing Challenges

Mission Critical

Low Criticality

Security	Due to involvement of GSM/ CDMA carriers identification of threats, risk and determining its business impact is crucial
Usability	Thorough understanding of Visual, Accessibility and certification testing is must
Performance	Due to the limited hardware architecture of mobile devices, success and failure of application in market depends on performance of the app
Networks	Testing to be performed on different networks like 3G, 4G, Wi-Fi and Edge, etc
Fragmentation	When you factor in different OS versions, unique hardware models, and carrier versions, the permutations are in the thousands
Tools	Specialized knowledge of tools specific to mobile testing
Lack of Awareness	There are many mobile tools and test approaches available in market, but all are not mature

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Definitions of Cloud

What do we mean by:

External Cloud

PUBLIC CLOUD

A mobile lab hosted by the testing tool provider. All cloud clients have access to the devices in the lab. A specific tester reserves the device he needs and uses it when its available. Accessible through the internet.

PRIVATE CLOUD

A mobile lab hosted by the testing tool provider dedicated to a specific client. The tester can reserve a device without having to share the devices with other clients. Accessible through the internet.

Internal Cloud

ON-PREMISE CLOUD

A secure mobile lab set up by the client itself. All the devices are connected to a server inside the company network. The company has complete control over what devices are procured and who uses them.

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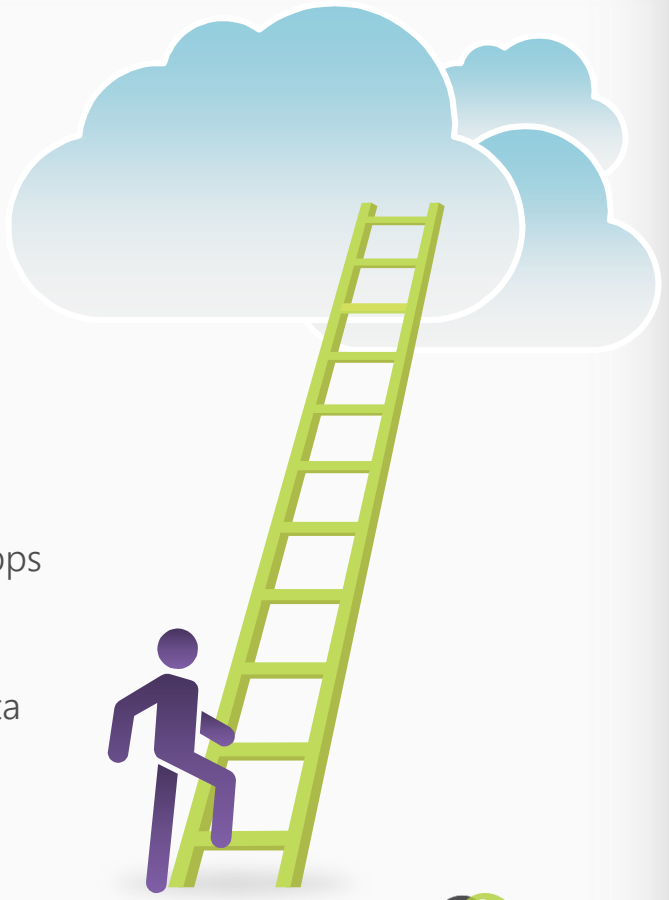
Using an External Cloud

Pros:

- Easy access to hundreds of fringe devices on demand
- No need to maintain devices (provider does it)
- Newer devices added to the pool at no extra cost

Cons:

- Performance tends to be slower, especially with higher bandwidth apps like video
- No control over security –Testing done outside the firewall, while data is transferred back and forth through the internet
- Different companies use the same devices with your app and private data



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Defining Lab Requirements

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Use Real Mobile Devices

TEST INTEGRITY

the degree to which a test system matches a production system, including hardware, firmware, devices, software, appliances, networks, etc.

Emulators/Simulators are tempting due to ease of use and low cost, however:

Proven to cause significant defect leakage (stats & peers)	**Lowest level of test integrity**	**Certain functions cannot be replicated**

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Other Device Lab Considerations

LAB SETUP WILL DEPEND ON:

Test objectives on coverage

Manual vs. automation

Testing types

Security

Budget

Scale

Location of Teams

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Test Coverage

- Device type (handheld, tablet, kiosk)
- Screen size & resolution – dozens just in the top 80%
- Device models – 20,000+ unique variations exist!
- Operating system – 27 variations in the top 85%
- Connection type
- Mobile Web vs. App
- Variance in carrier installations – 750 carriers globally

Even using 80/20 rule, you are left with thousands of permutations! So what do we do?

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Test Coverage, continued

Use analytics to understand your *users* and their *behaviors*

Top tools and example usage:

Omniture	**Google Analytics**	**Flurry**	**Segment.io (API aggregator)**	**TestFlight (monitor mobile behavior)**	
Localytics	**Applause (external, sentiment)**	**Geckoboard**	**Mixpanel (native vs. mobile web)**	**Mobile App Tracking (marketing)**	**Clicky (conversions)**

Building a World Class Device Lab

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Client Overview- Healthcare Example

- Because of regulation, security of test environment is paramount, therefore a traditional public cloud is not an option
- Scope of testing is going to be limited to manual functional testing to start
- Budget will allow for purchase of up to 40 devices per year
- Most of the SMEs are located on-site in the U.S, however most of the testing team is located in India
- Analytics have identified the platforms used by 80% of their users

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Overview of On-premise Cloud Components

Desktop Users U.S. or India

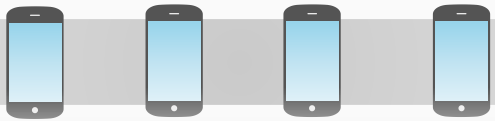
Admin Interface (View device inventory, reserve, etc.)

Real-time Device Viewer (launch sessions)

Remote Control protocol (access to perform gestures, text, etc.)

Device interface (USB hub, Desktop/Server, Appliance)

Devices on-site:



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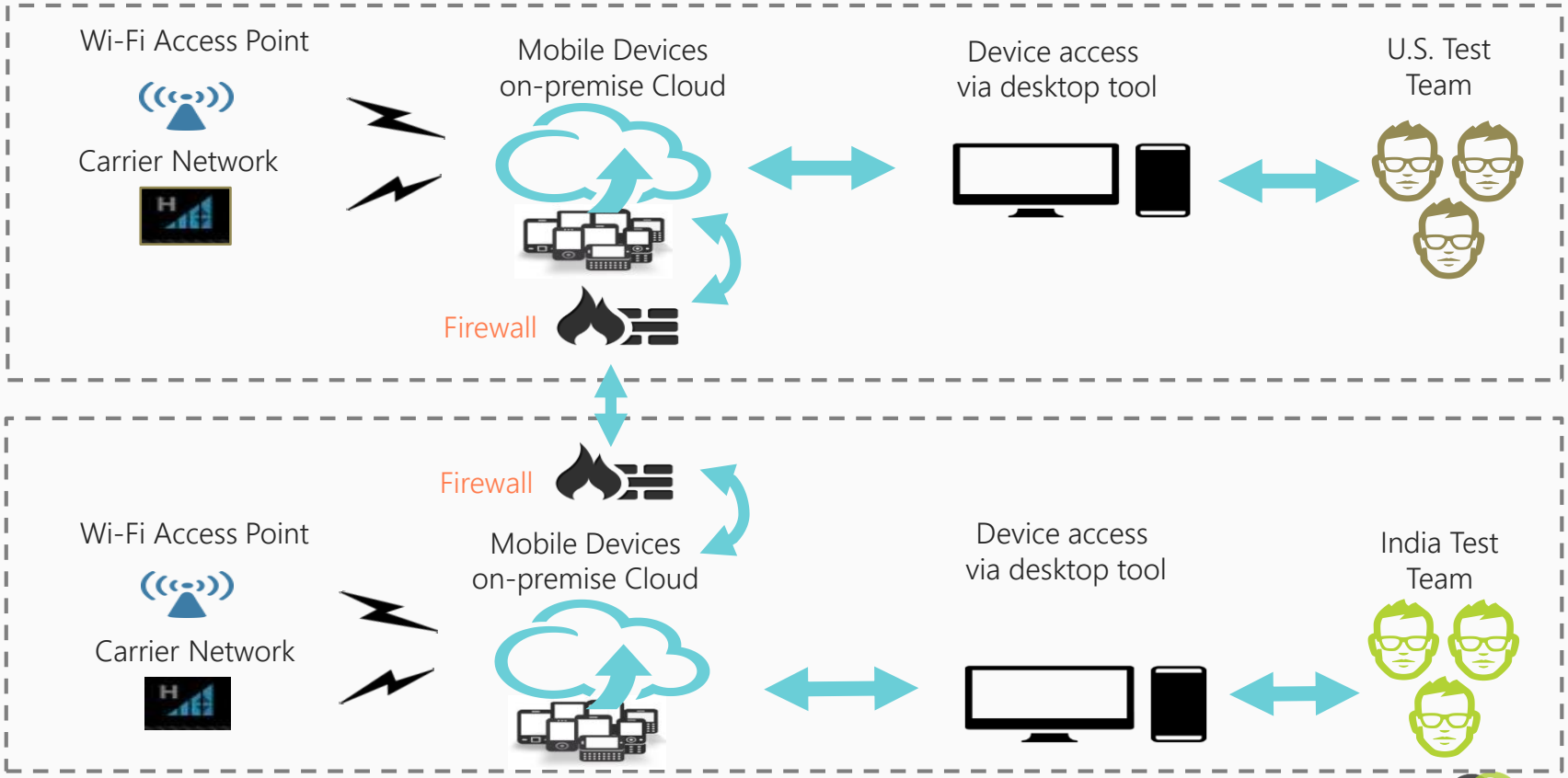
On-premise Cloud setup



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Part II

Remote Device Lab In The Real World

Speaker: Guy Arieli , Experitest CTO

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Agenda

1. Enterprises Mobility Challenges
2. Challenges of Mobile Lifecycle Team Members
3. Demo
4. Case Study- Major international bank

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Enterprise Mobility Challenges

Centralization of devices

One pool of devices for remotely located teams

Precise identification of devices for specific tasks

Security of devices and sensitive data

Device availability

Challenges of Mobile Lifecycle Team Members

PROJECT MANAGER

24/7 continuous testing environment

APP DEVELOPER

Access and control of devices

QA MANAGER

Reserve devices for team provide reports

AUTOMATION DEV

Ability to override reservations, usage reports, scale & add devices

DEVICE LAB MANAGER

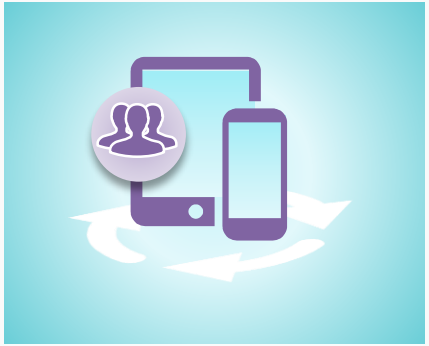
Access devices, book devices in advance

MANUAL QA USERS

Info on all devices, integration of scripts with devices

SECURITY OFFICER

Verify apps don't exit firewall, security of sensitive data



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Demo

Simulate Real Live Condition

Case Study

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Customer Profile:
Multinational banking and financial services company

Major global financial services provider engaged in personal banking, credit cards, corporate and investment banking and wealth and investment management.

- Headquartered in APAC
- Spans over 50 countries across Europe, America, Africa & Asia
- ~200,000 employees
- Mobile applications in tens of languages
- Ranked in top 10 largest banks worldwide
- Revenue more than $30 Bn.
- Total mobility group size - about 500 people

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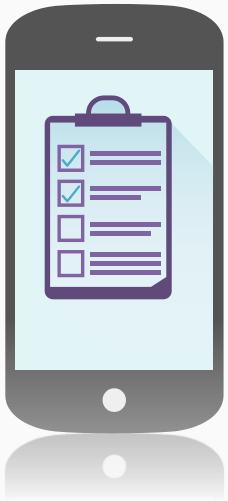
What Needed to be Tested?

Testing 15 End Users' Apps

- The bank's personal and business account management apps
- Wallet apps
- Trading apps
- Mortgages apps
- Bank card

Many more...



Testing 5 Internal Bank Employee's Apps

Applications used by the bank employees providing services to customers such as:

- Loan qualification forms
- Mortgage requirements forms

etc.

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The Requirements

On-premise devices, all within the bank VPN

Cross-platform testing on all OS: Android, iOS, WindowsPhone8 & BlackBerry

No need for access to application source code for testing (on-the-fly instrumentation)

Support for multi-field form filling including scrolling in lists, invisible objects, etc.

Ability to test on devices located in one of the bank facility by testers located in other locations

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The Old Solution

- Two years ago the development resources consisted of ‘Boxes’.
- For every application there was a ‘Box’ with around 70 devices, making up the subset of the device universe for the application.
- When a developer or tester needed a device, he found the ‘Box’s’ manager, took out the device, and when he was done he returned the device to the box.

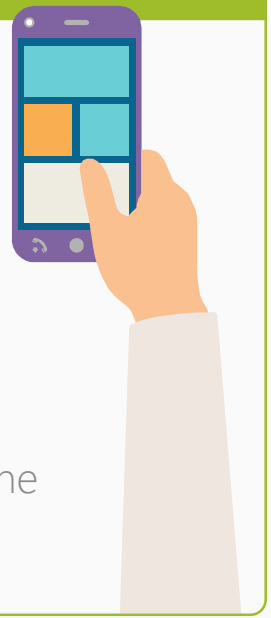
Challenges Created by the Old Solution:

- For 20 applications, each with a ‘box’ of 70 devices, the company needed to buy 1,400 devices.
- Hard to quickly identify a specific device with a specific OS and Version.
- Devices didn’t get charged so additional time was wasted charging them.
- Low security since different people had access to information they were not entitled to because:
  - devices had a habit of disappearing.
  - people forgot to wipe the application and its data.
  - developers working on different applications had open access to everything.
- It was hard to track which bug occurred on which device.
- Constant physical handling meant lots of wear and tear on the devices themselves.

The New Solution- Mobile Lab

The Solution Structure:

- **3 dedicated locations were selected: one in Europe, one in India and one in the US.**
- One set of 200 devices were selected. The device matrix was built based on current market demands.
- No need to change existing organization infrastructure that worked well
- In each of the three locations, only one person had physical access to the devices
- As the business expanded to did the device matrix – to over 300 devices in the cloud, available for everyone



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Who the Mobile Lab Affected & How

PROJECT MANAGER

Creation of continuous testing environment = mobile apps tested 24/7

APP DEVELOPER

- Easy reproduction of bugs
- Ability to reserve time slots

QA MANAGER

- Plan device usage in advance
- Control apps being tested

AUTOMATION DEV

- Automated tests from desktop
- Reports Reservation of devices

EXCECUTIVES

- Huge savings on device purchase
- Reduced wear & tear
- Apps get to market faster

DEVICE LAB MANAGER

- Total management time=<1hr/day
- 24/7 testing environment

MANUAL; QA USERS

- Use keyboard instead of actual device
- Short, automated scripts

SECURITY OFFICER

Entire project carried out within company firewall

CUSTOMERS

Less problems with apps Do more business with bank.

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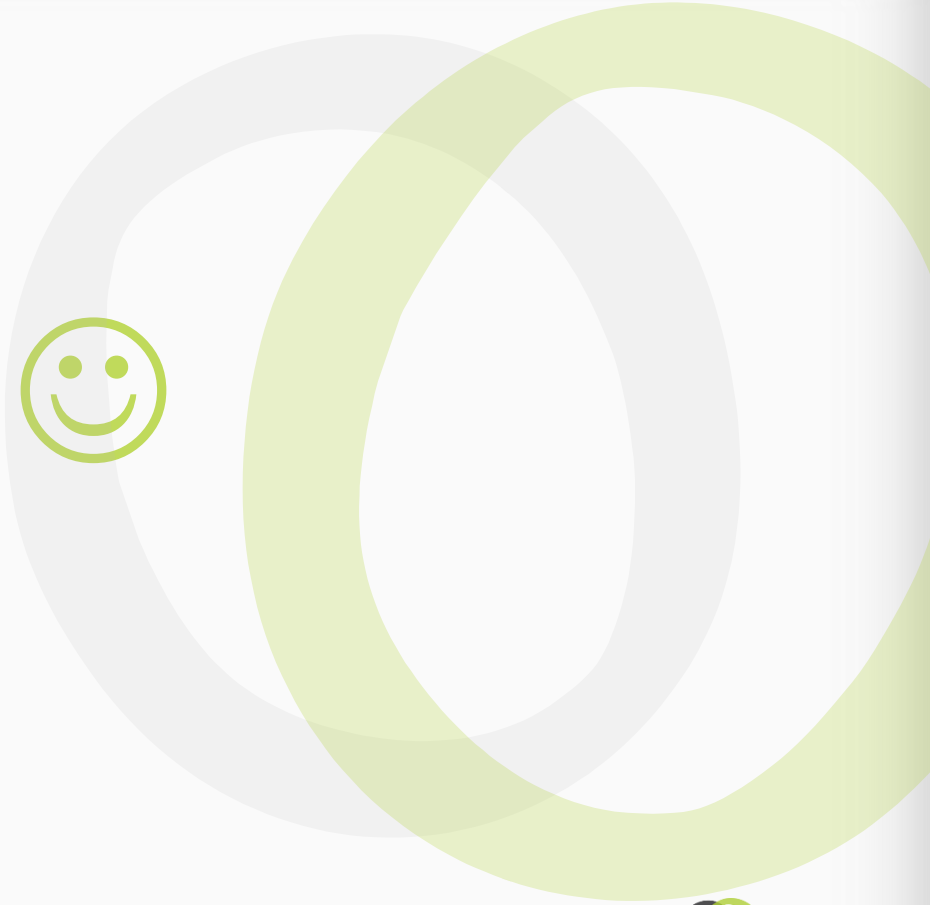
Thank you



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