MOBILE TESTING

Mobile has become a game-changer across virtually all industries. Organisations around the world now drive significant value through providing continuous access to services, anytime and anywhere - to millions of customers and thousands of employees over an astonishing array of devices.

Mobile devices are challenging the PC as the application platform of choice. For the first time, in 2011, mobile device sales exceeded the total sales of laptops and desktops. By 2016, mobile application projects will outnumber traditional application projects by 4:1. Every player in the market is eager to tap this exponential growth by creating applications that enable everything on mobile devices; from funds transfer and location-based services, to multiplayer gaming and more.

The success of these applications depends upon them working seamlessly and securely.

Unlike the PC environment, the mobile environment consists of varied devices with diverse hardware, software and network configurations. As this is a great challenge to development of applications, ensuring high-quality and successful deployment needs a unique testing strategy.

A comprehensive mobile testing strategy that includes device and network infrastructure, optimised selection of target devices, and an effective combination of manual and automated testing tools to cover both functional and non-functional testing, is essential for getting your mobile applications to market on time and within budget.

The World Quality Report 2013-14 highlights the fact that the majority of companies feel ill-equipped to handle the complexity and scope of testing multiple mobile platforms, devices and services. Even those organisations with a solid testing foundation find unique challenges with mobile testing.

WHY REVOLUTION IT

At Revolution IT, we don’t just make software work, we make it work well. From planning through to operations, we use proven methodologies to reduce IT spend, meet aggressive timelines and deliver outstanding application quality.

Revolution IT is Asia Pacific’s leading software testing and application quality management solutions provider. Our industry leading methodologies, tools and people are all focused on providing quality throughout the entire application lifecycle. With extensive cross industry experience we have built an impressive list of 300+ clients that rely on us for the right advice, assistance, resources and tools.

Our capacity to combine quality control with cost control is unique. To curb costs and manage risk, clients can outsource, either onshore or offshore, via our Managed Services. To maintain application quality, we give clients the best people on the ground, and the strongest vendor relationships in the region. By empowering staff, customers or suppliers with secure, integrated and reliable mobile applications, organisations are driving efficiencies and deepening customer relationships while harvesting data and leveraging analytics.

Our testing services include support for the following:

- Mobile Platforms (Apple iOS, Android, Blackberry, Windows Phone, etc.)
- Mobile Devices (iPhone, iPad, Android smartphone and tablets, etc.)
- Mobile Applications (Native, hybrid, web)

We provide comprehensive mobile testing services that include the following:

- Automation testing
- Performance (stress and load) testing
- Security testing
- Functional testing

APPLICATION LIFECYCLE MANAGEMENT

WORKING WITH US
CHALLENGES
In many respects, mobile testing is not all that different from other types of IT testing. From methodology through to many testing tools, what Revolution IT and their experts have learned in non-mobile testing can be applied to mobile testing.

Revolution IT have categorised a number of highly relevant areas which require specific attention, but if they are handled correctly, will mean a successful mobile testing effort.

CONNECTIVITY TESTING
Solution design and testing are required to address variable bandwidth, offline, flight and sleep mode scenarios and validate user sessions moving between different network conditions.

DEVICE CHARACTERISTICS
Mobile testing needs to take into consideration the following characteristics; GPS, chipset, camera, screen size, touch capabilities and voice control.

CONFORMANCE
The majority of applications are distributed through open and public application stores, each with their own set of rules and regulations, from marketplace guideline compliance to enterprise policy compliance which includes prohibited content.

FRAGMENTATION
The market fragmentation for both operating systems and device types continue to expand. The challenge is to ensure quality across the ever-increasing range of devices.

USER EXPERIENCE
User experience measures how easy user interfaces are to use i.e. “user-friendliness” and how easy the use of the software will be for a typical user to understand, learn, and operate. Key elements include navigation, layout and exception handling.

TEST AUTOMATION
Automated testing provides a mechanism to consistently repeat a test procedure and verify application results. It can be effective both for regression testing and during development (to ensure new features are not resulting in unintended changes to existing features).

PERFORMANCE
Meet challenging end user expectations for application performance across network types, system integration and back end layers, as well as the application itself.

SECURITY
Mobile applications need to be free from vulnerabilities and protected against data breaches. Testing apps needs to not only focus on their features but also verify the security of their underlying platforms, confidentiality and integrity of data.

APPROACH
At Revolution IT, we recognise that there is no ‘silver bullet’ when it comes to mobile testing solutions. As a result, each mobile test strategy is tailored to best fit our client’s requirements and provide an appropriate testing solution, whether it be a native application, web application or a hybrid application.

In order to recommend a solution, outside reviewing the respective challenges, various elements are considered, specifically:

SELECTING TARGET DEVICES
Selecting the devices in scope for testing a mobile application should follow a risk-based approach. A representative sample of the expected device population is used, along with a balance to optimise the duration and cost of the test phase.

Simulator Testing
- Ideal for use in the development phase
- Suitable for basic functionality testing
- Cross-Version Testing

Device Testing
- On Wi-Fi & Network Simulators
- For use on stable features
- Recommend only for a small subset of network dependent test cases

PHYSICAL DEVICES VS. SIMULATORS
Using simulators can prove to be very effective in the early stages of product development. Simulator provide the test teams with opportunities to familiarise themselves with application features. Testing on physical devices, however, is essential to understanding application behaviour. Device usage can be optimised by distributing test cases across a range of devices. Here we look at conditions under which testing with simulators and real devices can be effective.
CONNECTIVITY OPTIONS
Almost all applications rely on network connectivity to provide useful functionality. Wi-Fi networks can be easy to set up and can be cost-effective, unlike mobile connectivity that can be both unreliable and expensive.
Network simulation tools provide a cost-effective and easy to use option to simulate mobile networks using a WAN/Wi-Fi connection. These tools can be used to simulate various network speed/bandwidth options (2G, 3G, and 4G), connectivity issues and bandwidth variations.

SELECTING AN AUTOMATION TOOL
Emulators and remote real-device solutions that support script and playback functionality are time-savers that can allow you to execute more test cases with a higher degree of consistency. A solution that integrates real and emulated devices is ideal.
In order to recommend a viable test set, there are a number of criteria to consider:
- Current and future target platforms
- Script reusability
- Sharing source code
- Lead time for new OS versions and devices
- Results and reporting
- Integration capabilities
- Service and support
- Costs

CONCLUSION
Revolution IT are leaders in Mobile Testing. Combining the solutions to mobile specific aspects of application testing with traditional best practices and testing processes can effectively address the challenges of mobile application testing that ensure business value is delivered.

LONELY PLANET
Lonely Planet has built its brand by inspiring travelers and tourists to explore new destinations. To diversify its business, and build a new revenue stream, Lonely Planet commissioned a series of travel apps from a third-party developer. Before releasing these new products, Lonely Planet turned to Revolution IT to test these travel guides, city guides, country guides and translation apps.
Our test strategy identified 15 crucial mobile device and OS combinations. These combinations would ensure testing coverage was broad yet manageable. Our approach included testing in the field, and automated testing in our mobile testing lab. After developing a series of high-level test cases, a series of scripts were written to test extended work flows through the apps. For iOS, these scripts used Apple’s “Instruments” application, its “Automator” tool and Apple’s automation object library.

DELOITTE
With a company as big as Deloitte, robust continuity management is crucial to protect their client relationships and clients’ IP. Before rolling out its new smartphone app for continuity management procedures, Deloitte turned to Revolution IT to develop and implement user acceptance testing for the new app.
Our comprehensive test strategy examined iPhone, Blackberry and Android smartphones and included testing for a ‘locate my team’ feature, E2E business scenarios, role-based security, and interfaces to both the Deloitte network and their cloud platform.

MELBOURNE WATER
To ensure its new data collection app would be embraced by staff, Melbourne Water needed confidence it would perform flawlessly in the field.
Revolution IT put together a comprehensive test strategy to examine all the app’s functions, its synchronisation with external interfaces and its role-based security. During the early functional testing phase, lab-based testing was also used.
Major vendor partnerships

HPE SOFTWARE
Teams using HPE software choose Revolution IT because we’re a Platinum HPE partner, the highest partnership level available. This position recognises our achievements as an HPE consulting partner, an HPE first-line support partner, an HPE training provider, as well as our track record as an HPE reseller.

Our platinum delivery partner status is testament to our highly regarded reputation and ability to specialise in and provide various HPE software solutions to a range of industries. We have won HPE’s Asia Pacific Partner of the Year five times; we’re their South Pacific SaaS Partner of the Year; and we manage more HPE licences than any other HPE reseller in Australia.

PERFECTO MOBILE
As one of Perfecto’s preferred resellers in Asia Pacific, we integrate Perfecto with other testing tools; design and carry our comprehensive test and monitoring plans using Perfecto and help our clients use Perfecto to set up and run mobile testing labs.

Perfecto’s solutions boast a number of simple-yet-powerful features. With a range of advanced testing, automation and monitoring services, Perfecto gives developers better quality testing, shorter development times and, potentially, reduced production costs. Also, their MobileCloud allows developers to test and monitor across the most comprehensive range of handsets and tablets available.

IBM RATIONAL
We have a passion for tools and platforms that allow our clients to innovate more efficiently. And as an IBM Rational business partner since 2009, we’ve built our reputation designing and delivering a wide range of cost-effective IBM Rational solutions.

Our work falls into three overlapping areas: consulting, mentoring and training. And our specialists have a deep understanding of a host of IBM Rational products.

CA TECHNOLOGIES
CA solutions help power most Global Fortune 500 companies. They’re also behind recent leaps forward in Application Performance Management and Service Virtualisation.

In recognition of our leadership in APM and PPM, CA Technologies have made Revolution IT a CA Premier Partner. We’re the only partner at this level in Australia and New Zealand.

NEOTYS
Revolution IT is an official Neotys reseller and service partner.

With Neoload from Neotys we give clients confidence to open doors to entirely new ways to do business: on the web, in the cloud and on mobiles.

We’ve been using Neoload to solve complex performance issues since 2009. We also train specialists and beginners in how to use this software. And we’re one of the only Neotys certified service partners in Australia.

Our passion for Neoload solutions is twofold: how it complements other load testing products; and how it allows organisations to harness new channels.