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QUALITY ASSURANCE IN MOBILE COMPUTING

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Abstract
The quality assurance of mobile applications is an important factor to achieve their success in mobile market. The quality deliberation is meticulously significant for both developers and application users. There are lots of software tools to assist developers testing their applications before the induction of the final product. In this paper we analyzed the testing process of mobile computing.

Keywords: Quality Assurance, Risky, Enterprise and Automated.

Introduction

The quality assurance of mobile applications is an important factor to achieve their success in mobile market. The quality deliberation is meticulously significant for both developers and application users. There are lots of software tools to assist developers testing their applications before the induction of the final product. Test applications using a variety of techniques like binary and manual analysis to provide a comprehensive view of application vulnerabilities, risky and malicious behaviors.

The uploaded mobile applications for analysis and obtain detailed intelligence on application capabilities and behaviors before you allow them into your enterprise app stores or secure application containers. Every application is assessed statically to identify capabilities with the code and also run within a sandbox to identify risky behaviors during operation, using dynamic analysis techniques.The enterprise is different in the level of risk they are willing to take on and the types of application behaviors that they consider risky for various employee groups. The embedded policy engine enables you to quickly identify which mobile apps violate enterprise policy.

Integrate behavioral intelligence via APIs with a variety of enterprise MDM solutions, as well as with enterprise app stores, mobile application containers and app wrapping.

Leverage our searchable directory of the most popular Android and iOS apps available from public app stores including detailed behavioral intelligence on each application. You can use the directory to obtain a good understanding of the types of applications that would pass or not pass your policy.

Protected Mobile Applications in Development

Our mobile protection solution is a combination of automated analysis and program services that enables you to secure mobile applications during development so that security can be an innovation enabler. Leveraging Veracode's static and behavioral analysis, and optionally Veracode's world class manual penetration testing team, you can get a complete picture of the risk in mobile applications that you build, including security vulnerabilities that may endanger the data being managed by the application as well as risky or unintended behaviors such as indiscriminate sharing of data with third parties. The solution also provides developers with guidance on how to address the problems found via a combination of in-platform guidance and expertise from application security consultants. Veracode's unique solution also includes support for identifying vulnerabilities and behaviors inherited from third-party components. You can then mitigate those risks with app wrapping or by using more secure component libraries.

Mobile Phones are completely changing the way that people run their lives. There seems to be an app for just about every aspect of our personal life. Now, more and more businesses are looking at creating mobile apps for employees and customers alike.

But developing software for today's distributed enterprises is not a simple task. Developers must often work with multiple technologies, highly distributed environments and computing networks often built on a hybrid infrastructure combing legacy systems with newer ones.

The pressure added to develop applications for the growing range of smartphones, tablets and other mobile devices and you can understand how many may balk at the idea. For those aiming to develop a mobile app that will make employees more productive or customers more informed, there are some common mistakes that developers often make. Issues such as app performance, security and real-time monitoring are ones that are unique to the enterprise and need to be addressed as such.

Mobile application testing faces unique challenges compared to PC software quality assurance programs. For effective penetration, mobile apps must perform within a highly fragmented, dynamic device market. Building the necessary in-house expertise and infrastructure to support software running on any device and any network is a daunting task for any organization.

A cloud-based test environment provides the app provider's QA department with a complete choice of devices, OS platforms, display densities, phone carriers and languages within which they execute their test scripts. Additionally, they allow for scripting/IDE integration and instant worldwide QA and developer collaboration.

Advantages of Cloud Based Mobile Application Testing
Mobile app testing in the cloud allows in-house development and test teams to maintain focus on results without the distraction and expense of maintaining an extensive test bed infrastructure.

There are several advantages that accrue when using a cloud-based testing service:
Applications run in a secure environment The QA asset footprint is minimized.Resources are scalable to match testing demand Parallelized testing saves time A wide range of programming languages, scripts and development environments are supported All testing modes are available including compliance, security, failover, latency, stress, capacity, performance measurement and more Interaction with carrier phone plans and services is included Automated test results are collected in logs, screenshots or videos QA and development teams have access to tools and results from anywhere Cloud Based Mobile Application Testing Tools Perfecto Mobile Continuous Quality Lab At the center of Perfecto Mobile's Continuous Quality Labis their SaaS-based platform called MobileCloud™. This provides access to hundreds of smartphones, tablets, device emulators and test development, automation and collaboration tools.

Real devices on live carrier networks are operated from a browser interface. Test sessions can be recorded in logs or multimedia presentations and shared directly with test or development teams. Test scenarios are developed using online recording of device interactions and keyword scripting. Scripts from one device can be transferred to other devices automatically.

Perfecto's environment is built on open, REST-based APIs that embed within any development or testing environment regardless of whether the enterprise uses commercial or programming tools open source.

Applications to be tested test scripts or instrumentation code can be uploaded directly to the device provided by DeviceAnywhere Cloud. Released applications can be loaded from the platform's app store or pre-release apps loaded via DeviceAnywhere's secure upload tool.

The platform also includes test case management, automation tools and direct device management functions. Multiple devices are accessed simultaneously in tabs. Anomalies can be logged individually in video or shared live with other users.

Mobile Testing in Automated Environment
The mobile web app of Sauce Labs testing platform is based on the Appium open source project, which interfaces to native Android and IOS automation frameworks. It supports over 400 browser-OS platform combinations. It uses the Selenium testing framework, which enables authoring tests using record and playback tools.

Since tests are run through the use of emulators, throughput is easily scaled. All tests are run within secure Virtual Machines that are torn down after each session. No app data is preserved between sessions.

Tests can be written in any popular development language including Java, PHP, Node.js, Python or C# from any test framework. When tests complete, a screenshot-by-screenshot log, command-response log or video recordings are provided. These can be shared with team members and used to document bug/fix reports.

Test Cloud
The cross-platform developers and QA, there is the Xamarin Test Cloud. Using a proprietary test framework called Calabash, any Android or iOS app, native or hybrid, can be fully tested from the user interface downward. The environment is specifically built for Xamarin developed apps in C# and test scripts written in C#. The test cloud hosts over mobile devices on both iOS and Android. Real or emulated devices can be selected. The test tool includes iOS and Android dashboards which run multiple tests. Each dashboard includes overall performance monitoring and displays testing progress.

Each test case has its own script log, device log and screenshot. The latter provides instant feedback on logic or display errors. A special construct can be added to script code via the Xamarin IDE that acts as a super breakpoint. It enables the tester or developer to use an interactive command shell at the breakpoint where complete investigation of the fault can be performed.

Test cases can be run automatically during nightly Visual Studio builds. Test Cloud also integrates with any CI system and Jenkins.

Conclusion

Mobile testing based on cloud promises vastly improved test competence and earlier turnaround time for bug detection and fixes. It levels the playing field among mobile software development organizations by relieving them from supporting a testing infrastructure for a combinatorial explosion of device brands, models, OSs and carrier networks. It does all that while providing a secure execution environment and worldwide collaboration capabilities among testers and developers.

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