Introduction to Mobile Application Testing

In the fast growing world the mobile phone is not only a device to make and receive telephone calls but also a multipurpose personal gadget. There are more technological improvement and the propagation on mobile devices with different Operating Systems like Apple iOS, Andriod, Windows Phone, Blackberry, Symbian etc. In the fast growing world there are new challenges for hardware manufactures to stay in the competition. Also the application developer needs to deliver best Apps over variety of platforms within a quick time.

What is Mobile Application Testing and Why it is needed?

In highly fragmented and competitive global market the mobile development cycle is of short period. For the vendor's equanimity and overwhelming task to ensure long term success, the APP must be tested over different combination of platforms, operating systems and networks before launching to global. In addition to this, similar to Functional testing the non-functional testing like Security testing, usability testing etc. also plays an important role. The effective test planning in **Mobile Application testing** makes helps to improve the quality of Mobile Apps.

In this article we are exploring how to achieve the *mobile application* quality and get better competence on mobile testing. We are also learning on what Mobile Automation is and what the challenges in **Mobile Application Test Automation**? Many testers are confused about Approaches for Native and Hybrid Mobile Apps, so this discussion will shed some light on this as well. In the market there are different varieties of Mobile Automation Tools available, however each mobile automation tools has its own advantages and disadvantages. As a result, we will see "What are the Key Principles for selecting the right Automation tool for Mobile Apps Testing?"

The mobile automation testing is extremely efficient approach to test the Mobile Applications which gives us the considerable returns if you choose right tools for Mobile Test Automation.

Key Mobile Testing Challenges in Mobile App Test Automation

The primary factor that determines an automation tool's success is its ability to work across platforms and technology stacks. The following challenges influence automation success:

For all companies the Mobile applications become a "game changing" force in all industries. Let's look at what all challenges introduced these game-changing technologies:

1) Planning of Quick Rollouts:

The companies are looking for the golden business opportunities in unique Mobile apps and expecting rapid rollout of quality application or improvements and bug fixes if application is already launched. They want to push the applications in the market as quickly as possible to avail the benefits of market boom mobile sector. As a result the QA testing cycle which generally takes two to three weeks depends on the complexity and

the size of the application is now reduce to half or one week. Due to clutch in the timelines the QA it is very difficult to problems if mobile applications don't meet the customer expectations.

2) Multi-Platform Compatibility:

With the propagation of mobile devices like iPhone, iPad, Smartphones, Tablets, Windows Mobile and wide range of Andriod devices etc, mobile application providers have to provide the multi platform compatibility to reach their audience. In the mobile industries there are no any industry standards for Operating Systems or device hardware, so testing of apps over variety of devices is not a simple task. So here we cannot 100 % say that test cases which passed for one device are also passing for other devices, even if device from same family.

There are many combinations while testing mobile apps like Screen resolution, memory sizes, battery, Operating System etc. The creation of separate test case and execution on each device can be the most expensive and time consuming task.

The mobile application market is rapidly growing with a demand of quality product with no any excuses on errors and security holes.

3) Dealing with a variety of connectivity modes:

One more important parameter to be considered in the mobile testing is the "Modes of Connection" to access the application. This step can be ignored if the internet connection does not required for application under test, however almost all applications requires internet so this test case needs to run over different connections like WiFi, 3G, 4G etc. Even you test the application you will face the wide range of applications over different connectivity options. While planning you QA Automation testing strategy you need to consider connectivity modes which are equally important.

4) Creating end-to-end tests:

The mobile market demand is to integrate the mobile applications with all platforms and expected to flawlessly access the data on mobile and other platform like Web site. The end to end test cases should be work as expected on mobiles. Consider a example where order is placed from the mobile device and same can be from the log in into Web site. These mobile apps are expected to work on front end and back-end systems.

5) Mobile Testing Tool Availability / Selection of Mobile Automation testing tools:

We have many proven tools available for object recognizing screen object on web. For the mobile devices there is range of automation testing tools, however choosing of right automation tool for testing plays an important role in QA strategy planning. *(In next article we will see the list of*

good automation tools.)

Approaches for Native and Hybrid Mobile Applications

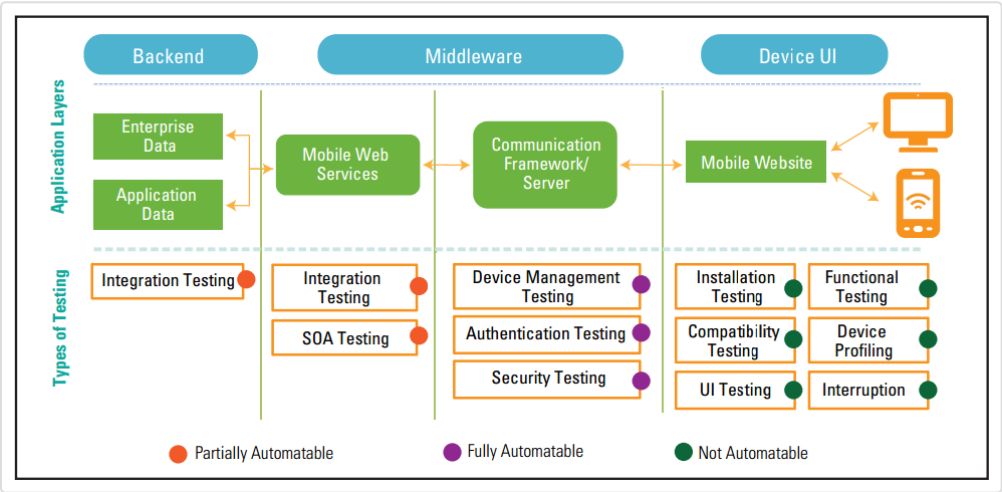
In mobile testing you can use different approaches

1) Mobile App Testing on Cloud:

To test mobile applications use of the Cloud testing is one of the most successful choices. Using Cloud based approach you can achieve the Native and Hybrid Mobile Apps automation testing. This automation testing approach can be used when long-term automation testing is to be carried out over multi-platform and predefined set of devices. Cloud-based automated solutions are highly effective as they are offered as a unified package. Once the deployment is done on cloud lab then you just needed a connectivity to cloud lab to kick off you testing from anywhere.

Using Cloud based approach will reduce the time to setup the test environment which generally cause the project delays. The cloud provides a pre-configured, highly synchronized architecture, strong server configurations, licensing, and testing resources. As a result reduced time-to-market and augmented testing competence. So defects get rapidly reduce which may occurred due to the faulty configuration of test environments. It help to increase the quality of application.

One of the great advantages of cloud approach is the amount of scalability with real time results, which means defects can be analyzed while the tests are running.



[Click on image to enlarge image]

2) Lab-based Approach:

In Lab-based automation testing you need to set up different tools in a testing environment and leverage simulators or physical devices to automate testing using different tools. In the market there are different capability tools are available for a lab-based approach like EggPlant, Jamo, See Test, ZAP and SilkTest etc. These automation tools can be used for continuous automation testing or to accomplish regression testing functionalities. Few of them also supports the non-functional testing features related to mobile apps.

3) Open Source/Platform-specific Tools:

In QA automation testing strategy the testing to check platform-specific tools reliability should be carried out at least once. There are different mobile testing tools available in the market like Appium, Calabash, Frank, MonkeyTalk, iOS UI Automation, Robotium, iOS-driver, Ui Automator, KeepItFunctional and Selendroid etc. But before starting testing on Open Source/Platform-specific Tools you should have added programming skills in your team. Also the mobile device simulators and emulators can be used for testing.

Advantages of Mobile Test Automation:

1. Same test scripts can be executed repeatable
2. Help to increase the testing efficiency
3. Help to enhanced the regression tests case execution
4. Multiple test cases can be executed with less time
5. Better utilization of time by running test script over 24/7 time.
6. Test scripts can be executed parallel on several devices at the same time.
7. Once the test scripts are ready, human resources do not require manual interruptions to execute the scripts.
8. Same test cases can be executed across different mobile platforms, so the scripting time can be minimized and same time can be used for more test coverage.

Conclusion:

In this article we conclude following few points:

We need to think of perfect automation strategy to execute a successful QA and helps to get mobile application on time and on budget.

We need to find the mobile testing automation tool which can help you to execute the same test script across platforms. As a result the scripting time can be minimized and same time can be used for more test coverage.

We need a mobile automation tool where you can configure a test setting for different device to test out the application over variety of connectivity modes.

Tool should be platform independent and allow you to create true end-to-end testing with a single test script possible.