Mobile Automation Tools Evaluation

By-Srikanth Vejendla

Revision 1.0

Table Of Contents

Introduction:

Evaluated open source mobile automation tools across IOS & Android platforms that would meet the below requirements-

a. Application source code should not be modified for test automation
b. Tests should run across Simulators,Emulators & Real Devices
c. Tests should be written using Java and any test automation frameworks.
d. Large open source community for continuous maintenance and support

Open Source Mobile Automation Tools Evaluated:

Appium, ios-driver, Calabash, KIF, Frank, Robotium, MonkeyTalk, UIAutomator, UIAutomation, Selendroid

iOS	Android
calabash-ios	calabash-android
Frank	MonkeyTalk
UIAutomation	Robotium
ios-driver	UiAutomator
KeepItFunctional	selendroid

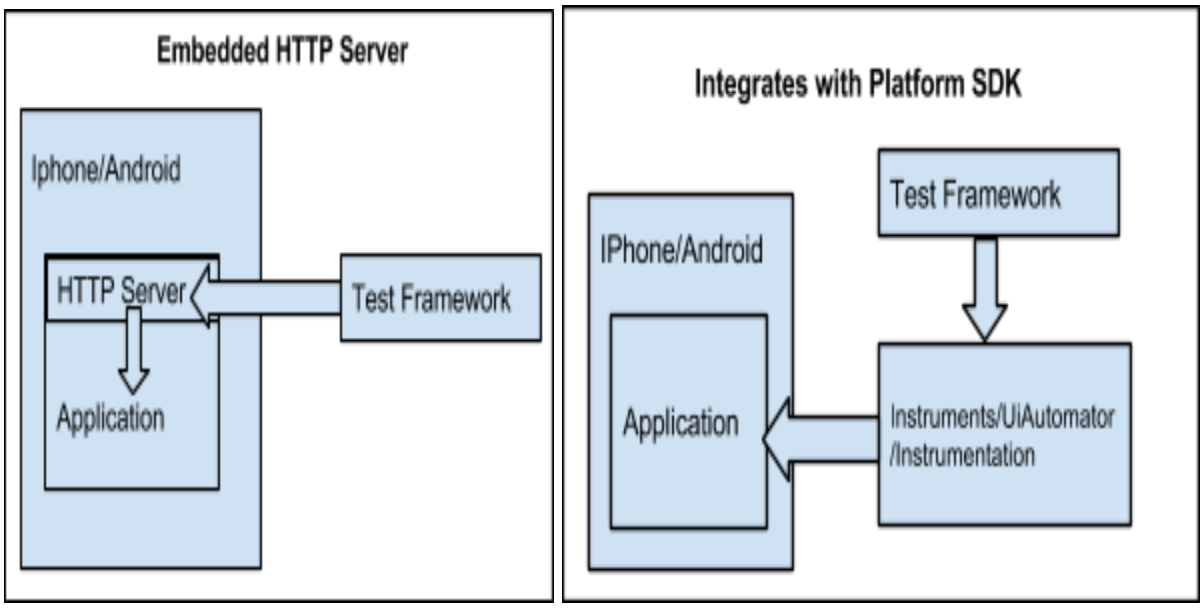
Requirement Analysis-

Requirement # 1 Analysis:

Application source code should not be modified for test automation

Same app should be submitted to App Store/Play Store which is tested by QA without further changes.

They are two schools of thought based on which test automation tools can be classified-



In first school of thought, app source code is modified to embed http server or app is re-signed with debug signature

Automation Tools (#1 School): Robotium, Calabash, Frank, UIAutomator, MonkeyTalk, Selendroid

Second school of thought, app source code or signature is not modified, here the automation tool uses the platform sdk support.

For IOS, Instruments
For Android, Instrumentation (Version 2.3 - 4.2), UiAutomator (Version 4.2 & greater)

Automation Tools (#2 School): ios-driver, Appium, KIF

Requirement # 2 Analysis:

Tests should run across Simulators/Emulators & Real Devices

Automation Tests should run on Simulators/Emulators & Real Devices when tethered without any modifications to the tests.

Automation Tool/ Environment	**Simulator(IOS)**	**Emulator(Android)**	**Real Device(IOS/Android)**
ios-driver	✓	✗	✗
Appium	✓	✓	✓
KIF	✓	✗	✗
Robotium	✗	✓	✓
Selendroid	✗	✓	✓
Calabash	✓	✓	✓
MonkeyTalk	✓	✓	✓
Frank	✓	✗	✗
UIAutomation	✓	✗	✓
UiAutomator	✗	✓	✓

Note:

- KIF, ios-driver, Frank doesn't support testing on physical devices

Requirement # 3 Analysis:

Tests should be written using Java and any test automation frameworks.

Automation Tool	**Language Support**
Appium	C#, Java, Perl, Python, Ruby, Objective-C, Javascript
ios-driver	C#, Java, Perl, Python, Ruby, Objective-C
Calabash	Cucumber, Ruby, C#, Java
UIAutomation	JavaScript
UiAutomator	Java
Robotium	Java
KIF	Objective-C
Frank	Cucumber
MonkeyTalk	JavaScript, Java

Requirement # 4 Analysis:

Large open source community for continuous maintenance and support

Appium is having the largest open source community support among the other tools with around 5200 code commits and 2200 issues being fixed

Note: Appium is great for scalability, it can be integrated with Selenium Grid, Sauce Labs (Cloud) to distribute tests

Conclusion:

In the requirement coverage table below, **Appium is the only automation tool that satisfies all our requirements listed**-

Requirement Coverage:

Tool	**Req #1**	**Req #2**	**Req #3**	**Req #4**
Appium	✅	✅	✅	✅
ios-driver	✅	❌	✅	✅
MonkeyTalk	✅	✅	❌	❌
Robotium	✅	❌	✅	✅
KIF	✅	❌	❌	❌
Frank	❌	❌	❌	❌
Calabash	❌	✅	❌	❌
UIAutomation	✅	❌	❌	❌
UiAutomator	❌	❌	✅	❌