

Testing Automation of Mobile Applications

By

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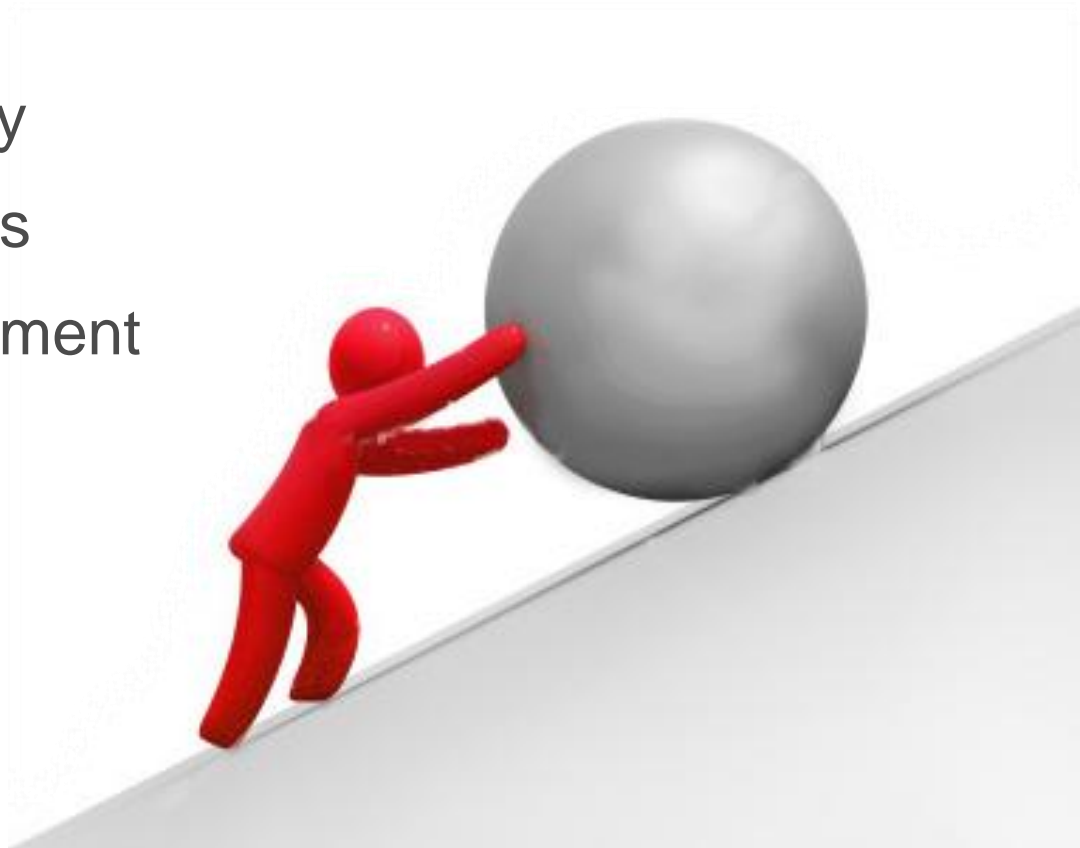
Impetus Technologies



- Challenges
 - Generic Challenges
 - Technical Challenges
- Solution
 - Test Automation
 - How it works
 - Types of Automations
 - Benefits
 - Constraints
 - Selection Criteria
- Achieving Test Automation



- Device / platforms diversity
- Hardware complexity
- Application complexity
- Carrier network issues
- Compressed development schedules



- Large number of test cases
- API Level test execution
- Verification of UI control
- Handset specific features



Test Automation is the use of strategies, tools and artifacts that reduce the need of human involvement on repetitive testing tasks

Supports – Unit, UI and Functional testing



How Test Automation Works?



Application specific test case writing



Conversion of test cases into scripts
(Write / Record)



Execution of test Scripts on devices



Unattended test cycles

- **Unit Testing Automation**
 - xUnit family of tools like JUnit/BUnit/OCUnit

- **UI Testing Automation**
 - VNC based tools that rely on image comparisons

- **Functional Testing Automation**
<best approach>
 - Combination of unit test type scripts with instrumentations

Benefits

- Programmable
- Repeatabile & Reusable
- Reliable & Comprehensive
- Increased productivity.
- Cost reduction
- Superior application quality.

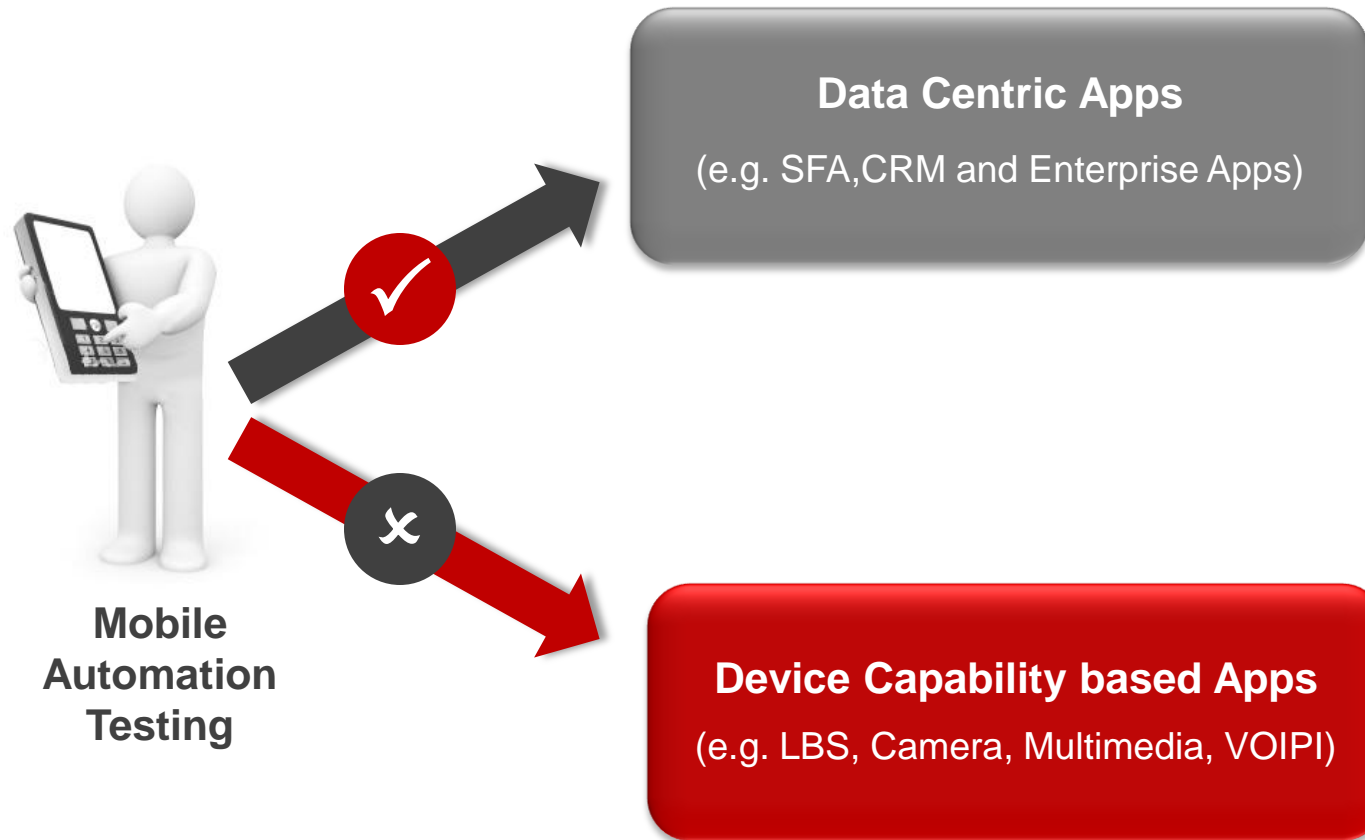


Major Constraints

- Regression & Negative testing
- Testing device features used in app i.e. Camera, accelerometer, GPS & Bluetooth
- Call & SMS interrupts
- Voice-mail or IVR based scenario
- Network latency



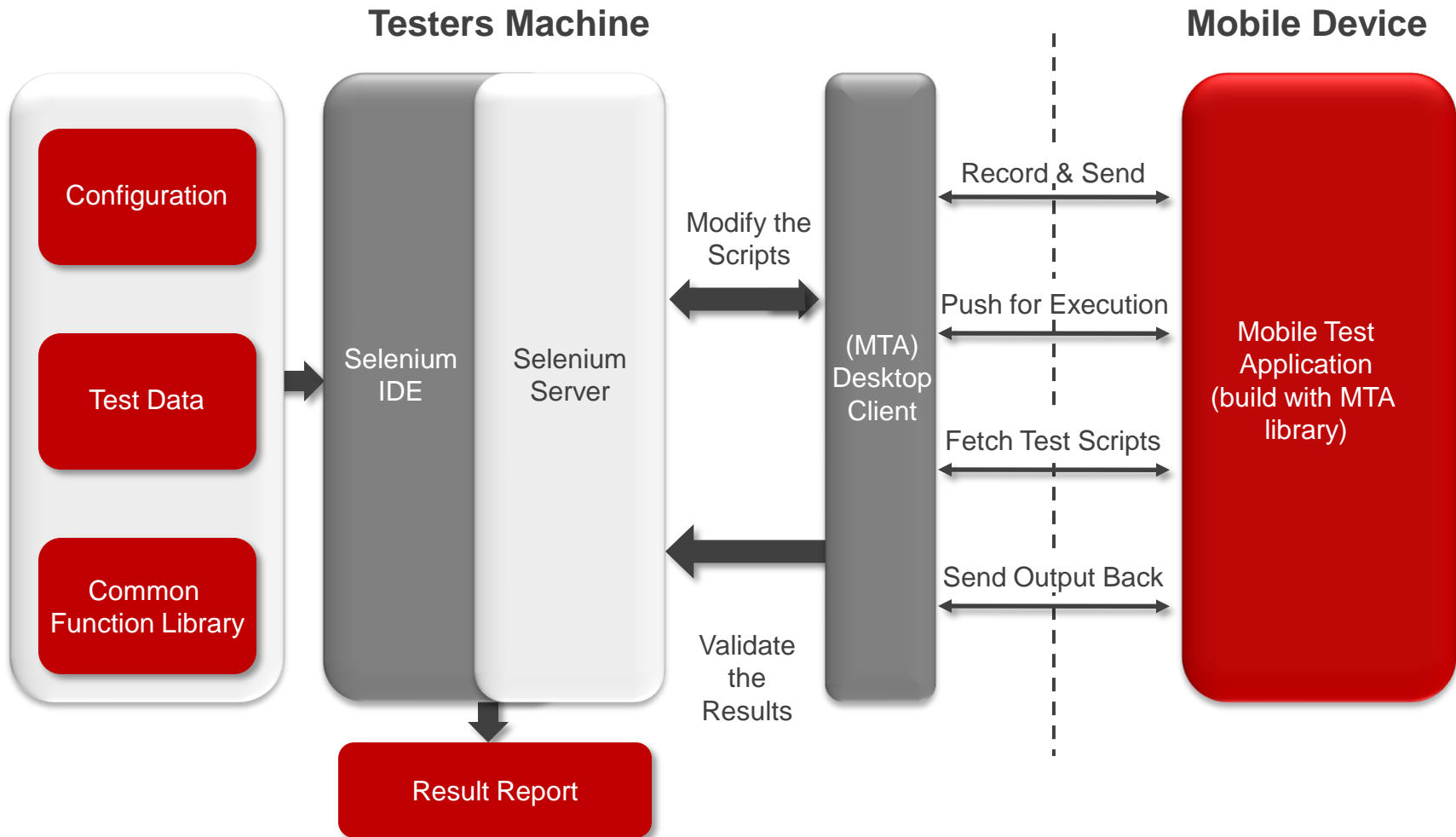
Selection Criteria



- Open source testing tool – Selenium
- Our mobile testing automation library – MTA
- Record/Playback capabilities
- Push based execution on target device
- Assertions of test results on server side



Our Approach



Benefits of our Approach

- Provides direct (key, value) pairs
- Better than screen comparison approach taken by other VNC based testing solutions.
- Test Scripts are independent of device resolution and screen sizes.
- Works on even low end single VM devices, as it runs in the same VM.



Case Study: M-CRM



- Mobile based CRM solution on J2me & Blackberry
- Manage customer list
- Create/send offers to the customers on SMS
- Track their responses
- Provide useful business promotion tips based on current trends



Case Study: M-CRM



- Only 40% code coverage by unit testing
- VNC based testing tools could automate 60% test cases
 - Problems due to many different screen sizes
 - Minor UI changes need re-recoding of test scripts
- Selenium/MTA approach helped automate almost 90% test cases



Questions



Thank you

For more information,
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