**iDEN™ Phone System Test: An Automation Approach**

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**Abstract**

Global Software Group Malaysia (GSG) is the first MSC status company out of 676 MSC-status companies in Malaysia to achieve the SEI-CMM Level 5 in October 2001. SEI-CMM Level 5 is the highest level of process maturity in software engineering. iDEN™ Subscriber Group – Test, iSGT is a subset team under GSG Malaysia and actually it is an extension of the iDEN™ Subscriber Group System Test in Plantation, Florida. iSGT is a software testing team who involved in Motorola iDEN™ phone software system test.

The main activity of system test is to identify defect in a particular version of cell phone software via system test before the product is release to the market. Automation Testing is a methodology uses by GSG-iSGT to increase the testing volume, productivity and reduce test cycle-time in cell phone software testing. Automation Testing consist by test procedure scripts, iDEN™ Phone Test Framework (iPTF) and Phone Test Framework (PTF).

The testing roles in GSG-iSGT mainly rely on manual testing activity whereby engineers perform the phone’s software testing manually. The testing scope and activity is designed in feature test suite basis such as making call (interconnect call, dispatch call, circuit data call and etc), MMS and SMS. Testing are performed according to test cases available in particular test suite or Test Procedure Specifications (TPS).

The major disadvantage in manual testing is the low test productivity and low reusability of testing. The process flow of manual testing and testing cycle will keep in the loop until final software is release. In a worse case scenario of manual testing, test engineers need to repeat every single test case in every single cycle of testing. The number test performed is proportional to number of test cycle and test cases. These mean more test engineers required to fulfill the high number of test cycle or to meet a critical dateline in order to increase the productivity. Manual testing is relying on test engineers directly and the risk of human error/factor is high. Defects might escape due to carelessness.

Automation testing is a methodology that performs testing using iDEN™ Phone Test Framework (iPTF) as a tool to execute the scripts on test phone. iPTF toolkits act as a platform to transform the script’s command to test the phone with the integration of test agent in phone itself. A test script is a piece of code which written in Java following the test step available in a particular test case of TPS. iPTF Graphic User Interface (GUI) is a standalone tool which is user friendly and easy to use for testing.

Automation test scripts are reusable resources whereby a script is testable in every applicable phone model and languages supported such as English, Spanish and Hebrew. This is not just saving the cost and time in executing test but also increase the test productivity since testing is automatable during night time whereby participation of engineer during automation test execution is not required. Hence, automation testing is efficient enough to handle high number of test cycle which short dateline is given. Moreover, the risk and impact of human error/factor is very low since testing is not too human dependent. Automation testing able to capture not only feature defects but also as specific as string or icon defects display which need more human effort.