SOFTWARE TESTING PROCESS FOR SHARED BANKING SERVICES (SBS) SYSTEM

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ABSTRACT

Software testing is one of the main activities in software development life cycle. This process consists of a few activities, which includes developing test plan and strategy, test design, test execution and evaluation of test result. However, a customized testing process is required for a specific domain in order to ensure the correctness and completeness of the test result. This project proposed a customized testing process for Shared Banking Services (SBS) system, which developed by R@PIC, HeiTech. Study was conducted in order to identify the specific modules in SBS and its characteristics which differentiate it from other software applications. Besides that, three testing methodologies, which are HeiTech Testing Process, RUP Test Discipline and Systematic Test and Evaluation Process (STEP), were compared based on criteria such as main activities, roles and responsibilities, artifacts and level of testing. The comparison result was then map to the characteristic of SBS to produce the proposed software testing process for SBS.

ABSTRAK

Pengujian perisian ialah satu daripada aktiviti utama dalam kitaran hidup pembangunan perisian. Process pengujian ini mempunyai beberapa aktiviti seperti membina perancangan dan strategi pengujian, merekabentuk pengujian, perlaksanaan pengujian dan penilaian hasil pengujian. Namun, satu proses pengujian yang lengkap dan bertepatan diperlukan untuk domain tertentu, bagi memastikan ketepatan dan memenuhi hasil sesuatu pengujian. Projek ini mencadangkan satu proses pengujian yang sesuai untuk Sistem Perbankkan Perkongsian Perkhidmatan (SBS) yang dibangunkan oleh R@PIC, di HeiTech. Oleh itu, satu kajian telah dijalankan bagi menentukan modul khas untuk sistem SBS, dan juga ciri-cirinya yang berbeza daripada aplikasi perisian yang lain. Disamping itu, tiga metadologi, iaitu Proses Pengujian HeiTech, Disiplin Ujian RUP dan Proses Penilaian dan Pengujian Bersistematik (STEP) telah dibuat perbandingan berdasarkan beberapa kriteria seperti aktiviti utama, peranan dan tanggungjawab, artifak dan paras pengujian. Hasil daripada pembandingan tersebut, ciri-ciri khusus bagi sistem SBS dapat ditentukan dan kemudian satu proses pengujian khusus untuk sistem ini dapat dihasilkan.

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CHAPTER 1

INTRODUCTION

1.1 Organization Background

1.1.1 HeiTech Padu Berhad Overview

HeiTech Padu Berhad [1] is a public listed company, which also as a Malaysia's leading ICT Solutions and Services provider. HeiTech draws its strength from many years of experiences by working with the customers from both public and private sectors to transformed theirs business from manual processes to automated systems and provide effective information system solutions. This enables relevant business decisions to be made accurately and timely.

1.1.2 Business and Services at HeiTech Padu Berhad

i. HeiTech Padu Berhad Core Business

HeiTech has been transforming businesses and organizations by providing comprehensive integrated Information and Communications Technology (ICT) services in Malaysia, which offer customers value-for-money ICT products and services in several areas such as Managed Data Center Services, Managed Network and Communications Services, Systems Integration Services and Solution and Consultancy Offerings.

ii. HeiTech Padu Berhad - Electronic Government Solution Suite (e- GSS)

HeiTech's Electronic Government Solution Suite (e-GSS) is a solution that links people, process and technology in a seamlessly integrated manner to deliver value and convenience to the citizens at large.

e-GSS is readily integrated the following solutions in it offering, which are:-

- Biometric fingerprint solution
- Photo captures solution
- Card personalization solution
- Smart card personalization solution
- Barcode solution
- RFID solution
- Passport printing solution (centralized and decentralized)
- Card Printing solution (centralized and decentralized)
- Document scanning solution
- Digital signature

iii. HeiTech Enterprise Solution Suite (HESS)

HeiTech Enterprise Solution Suite (HESS) is a set of products that ease the implementation of an enterprise system, which enable applications residing on legacy systems to be offered via multi-delivery channels such as web browser, self-service kiosk and mobile devices. This suite is able to support multi-protocols and is available both for open source and window-based platforms. HESS consists of 4 products which are:

- E-Connect
- RFID Middleware
- Device Service Server
- Hybrid Client

iv. HeiTech Padu Berhad Emerging Business

HeiTech has also ventured into non-traditional areas of expertise such as:

- Content Development & Distribution
- Data Management & Processing
- Electronic Commerce

1.1.3 Research and Product Innovation Center (R@PIC) Division

Research and Product Innovation Center (R@PIC) Division or previously known as Applied Research and Development (AR&D) Division was formed in October 2001. Figure 1.1 below shows the organizational structure of R@PIC division.

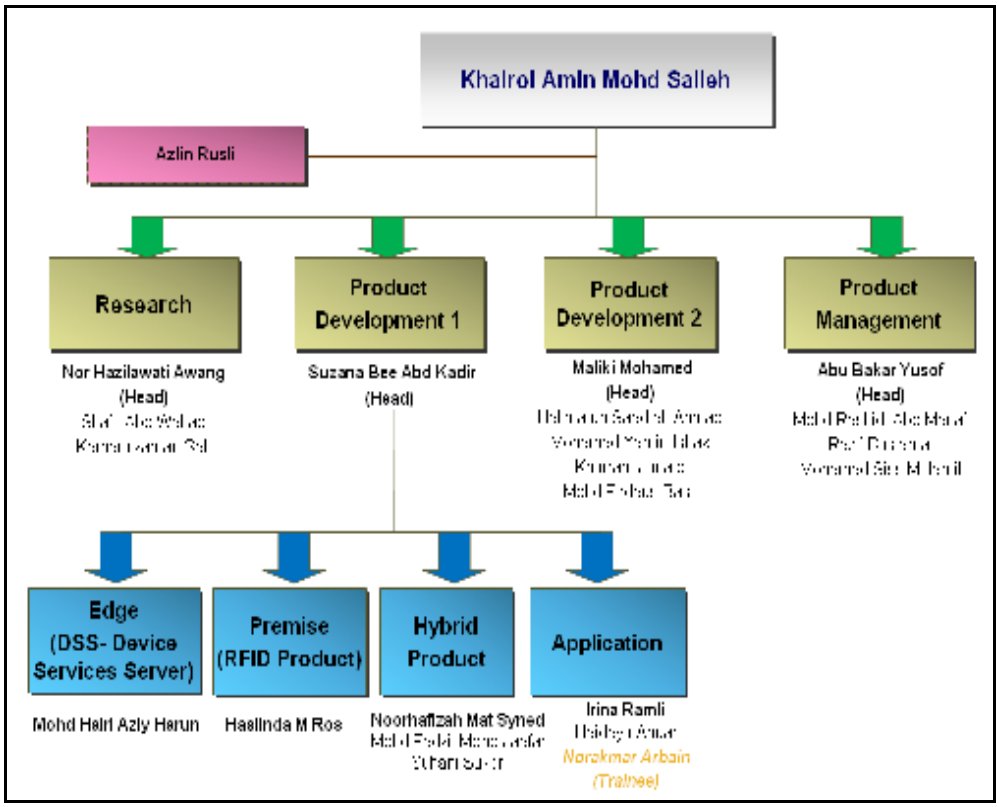

Figure 1.1 : Research and Product Innovation Center (R@PIC) Structure

Objectives and scope of this division are to research, develop and enhance HeiTech proprietary software products, to develop application components that are application independent, to conduct research on new and emerging technologies that could be beneficial to software development in HeiTech and also to promote knowledge sharing culture in HeiTech as a whole.

1.2 Project Background

1.2.1 Industrial Project Overview

Software testing process is important in software development activities. Therefore, this industrial project is focused on software testing process that currently practices in HeiTech. This research also covers on several testing process that being establish and currently practice in many organizations, which are RUP Test Discipline [2,3] and Systematic Test and Evaluation Process (STEP) [4,5]. Hence, these testing methodologies are being chosen in order to refer for several criteria that can implemented later for the proposed software testing process on banking application, such as Shared Banking Services (SBS) system.

Shared Banking Services (SBS) system [6,7] is currently in development stage and the contribution requires for this industrial project is in testing phase of this system. This SBS system is being developed by Product Development Team in Research and Product Innovation Center (R@PIC) Division at HeiTech. Hence, this project also defined SBS modules and its characteristics that require specific software testing process.

Consequently, from this research project, a customized software testing process will be recommended for R@PIC Division based on a comparison study from that three testing methodologies. The proposed framework of customized software testing process is based on SBS system's characteristics. Therefore, this

software testing process can be practices in future as it suits for testing client-server application or banking application system.

1.2.2 Shared Banking Services (SBS) System Overview

Shared Banking Services (SBS) [6] is a counter-based transaction system developed on top of a software framework (Hybrid Client) for developing a front-end, transaction based system. SBS system offers selected banking services that can be carried out at Pos Malaysia (PMB) branches. SBS consists of two main systems namely transaction systems and support or utility functions. Figure 1.2 shows the overall components view of Shared Banking Services (SBS) application system.

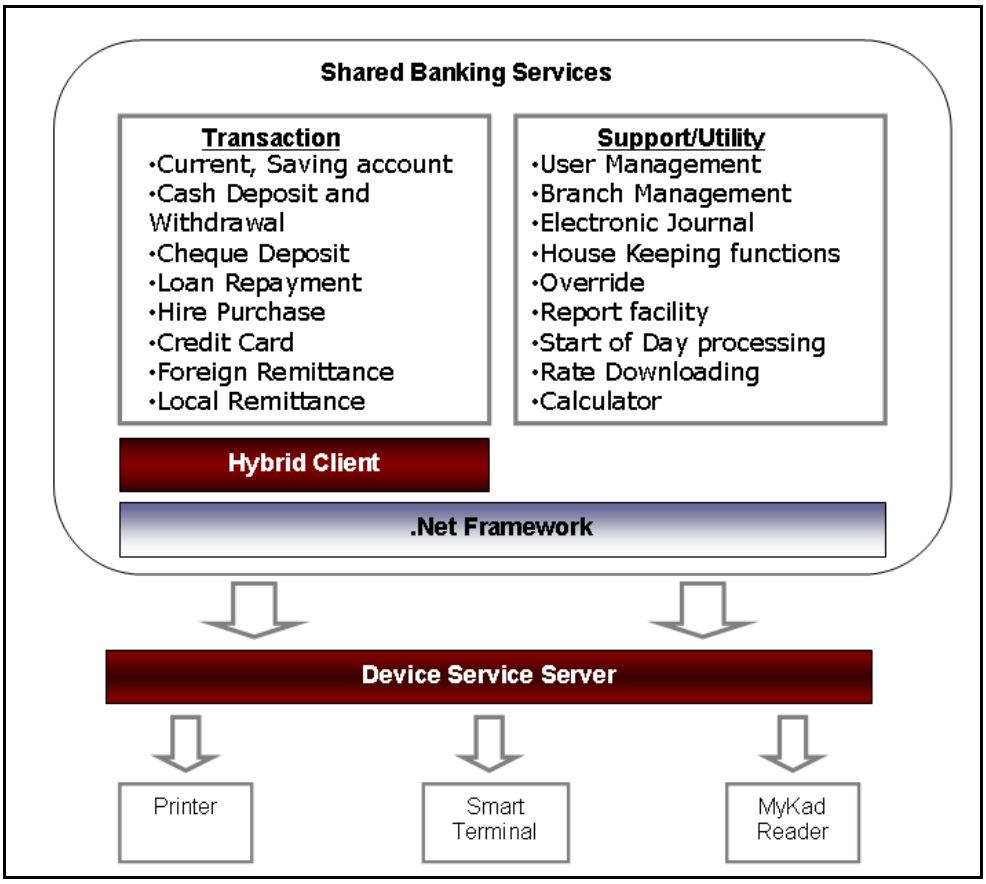

Figure 1.2 : Shared Banking Services (SBS) Components

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