

AN IMPLEMENTATION OF PENTAHO IN REPORTING
MANAGEMENT MODULE

ARZTRIE DELAILAH BINTI RUMI

UNIVERSITI TEKNOLOGI MALAYSIA

ABSTRACT

Reporting Management Module is one of SCAN Associates research and development team projects in order to find the most suitable and effective ways to develop the enhancement of the reporting module previous system. The current system's constraints including limited option in data visualization and also data calculation has effect the productivity of Security Analyst. The research of Pentaho implementation in this Reporting Module should be able to overcome the constraints mentioned. The system is a web based system and develops using JAVA with MySQL as its database. RUP has been chosen as the software development model and UML as the software technique. The analysis and design of this system is using the Scan Associates standard and guideline. The deliverables for this project includes the Software Requirement Specification (SRS) and Software Architecture Design (SAD). The Reporting Management Module is expected to provide a fast and efficient Reporting Management Module in order to improve the productivity of Security Analyst. It is highly hope that this module would be one of the effective ways to improve the company's quality.

ABSTRAK

Perlaksanaan *Pentaho* dalam *Reporting Management* modul merupakan salah satu daripada penyelidikan yang dilakukan oleh bahagian penyelidikan di Scan Associates Berhad untuk menjalankan penyelidikan ke atas perisian-perisian yang sesuai dan terbaik. Perisian-perisian ini digunakan untuk membangunkan sebuah perisian yang lebih baik daripada perisian yang sedia ada. Penyelidikan terhadap *Pentaho* ini sepatutnya mampu membantu *Security Consultant* untuk melakukan tugas dengan lebih cepat and efisien. Perisian ini dibangunkan dengan menggunakan JAVA bersama MySQL sebagai pangkalan data. Fasa analisis dan reka bentuk perisian ini menggunakan Scan Associates panduan dan standard. *Reporting Management* modul ini diharapkan dapat membantu memberikan satu perisian yang berkesan dan cepat bagi meningkatkan daya produktiviti *Security Consultant* dan dalam masa yang sama dapat meningkatkan kualiti syarikat.

TABLE OF CONTENTS

CHAPTER	TITLE	PAGE
	TITLE	i
	DECLARATION	ii
	DEDICATION	iii
	ACKNOWLEDGEMENT	iv
	ABSTRACT	v
	ABSTRAK	vi
	TABLE OF CONTENT	vii
	LIST OF TABLES	xi
	LIST OF FIGURES	xii
	LIST OF ABBREVIATIONS	xv
	LIST OF GLOSSARY	xvi
	LIST OF APPENDICES	xvii
1	INTRODUCTION	1
	1.1 About Scan Associates Berhad	1
	1.2 Background of project involve and important to the company	3
	1.3 Project Objectives	4
	1.4 Project Scope	4
	1.5 Project Deliverables	5
	1.6 Project Plan	5
2	LITERATURE STUDY	6
	2.1 Technology	6
	2.1.1 Tenable Network Security	7
	2.1.2 Business Intelligence	9

	2.1.3	Open Source	10
2.2		Database	11
	2.2.1	Oracle	11
	2.2.2	MySQL	12
	2.2.3	PostgreSQL	12
2.3		UML Tools	13
	2.3.1	Rational Rose	13
	2.3.2	Enterprise Architect	14
2.4		Software Development Model	15
	2.4.1	RUP	15
	2.4.2	Waterfall	17
	2.4.3	Spiral	18
	2.4.4	Prototype	19
	2.4.5	Comparison between RUP, Waterfall and Prototype Model	19
2.5		Application Server	22
	2.5.1	Apache Tomcat	22
	2.5.2	JBoss	23
2.6		Operating System	24
	2.6.1	FreeBSD	24
	2.6.2	Linux	25
	2.6.3	Windows 2000	26
	2.6.4	Comparison between FreeBSD, LINUX and Windows 2000	27
2.7		Reporting	28
	2.7.1	Pentaho Reporting	28
	2.7.2	Crystal Report	29
	2.7.3	Jasper Report	29
3		METHODOLOGY	30
	3.1	Software Development Process	30
	3.2	Software Standard and guideline	34
	3.3	Software Development Tools (Pentaho)	34

	3.3.1	The Pentaho BI Project	35
	3.3.2	Pentaho Projects	36
	3.3.3	The Pentaho BI Project exists to benefit and serve	37
3.4		About Pentaho Reporting	37
	3.4.1	Pentaho Technology Fundamentals	38
	3.4.2	Pentaho BI Platform	38
	3.4.3	Pentaho Reporting	40
	3.4.4	Pentaho Analysis	43
	3.4.5	Pentaho Dashboards	44
	3.4.6	Pentaho Data Integration	46
3.5		Extension to the Project	48
3.6		Software Tools	48
	3.6.1	Microsoft Word 2007	48
	3.6.2	Microsoft Visio 2003	49
	3.6.3	Rational Rose 2000	49
	3.6.4	Pentaho Reporting	50
4		PROJECT DISCUSSION	51
	4.1	Introduction	51
	4.2	Project Implementation Methodology	52
	4.2.1	Project preparation stage	52
	4.2.2	User Requirements	53
	4.2.3	Reporting Management Use Case	54
	4.2.3.1	Upload Report	55
	4.2.3.2	Get Report	56
	4.2.3.3	Use Case of Generate Report	58
	4.2.4	Class Diagram	60
	4.2.5	Sequence Diagram and Collaboration Diagram	61
	4.2.6	System Architecture	62
	4.2.7	Component Diagram	62
	4.2.8	Deployment Diagram	63
5		CONCLUSION	64

CHAPTER 1

INTRODUCTION

This chapter introduces the research of analysis of the application of Pentaho Business Intelligence in RM Module for NX project. The author will also elaborate the company's background, the project objectives, scope and planning

1.1 About Scan Associates Berhad

SCAN Associates Berhad, incorporated in September 2000, is Malaysia's premier and trusted ICT security solutions provider. It is an MSC-status and an affiliated company of Commerce Asset Ventures Sdn. Bhd., a wholly-owned venture capital arm of Bumiputra-Commerce Holdings Berhad.

With a solid track record of providing ICT security solutions and building its intellectual property, SCAN delivers internationally recognized and enterprise-wide solutions and services.

SCAN is backed by relevant Malaysian Government Agencies, such as the Multimedia Development Corporation and Malaysia Debt Ventures, to spearhead ICT security initiatives in Malaysian as well as overseas. In addition, SCAN currently houses the highest concentration of internationally certified ICT security professionals in Malaysia. SCAN has also made inroads into the international market especially in Indonesia and the Middle East by leveraging on its knowledge capital, to provide leading-edge ICT security solutions.

SCAN upholds Trust as its fundamental value proposition in providing customer-centric solutions and services to the growing regional and global markets, where it aims to be one of the leading global ICT Security Solutions providers. The company logo is depicted in Figure 1.1.



Figure 1.1 : Company Logo

1.2 Background of project involve and important to the company

The primary goal of NX project is to enhance the features of previous version network security solution and it intends to become a commercial product to compete with the worldwide Managed Security Service (MSS) providers. NX provides a suite of solutions in order to prevent, detect and respond to the vulnerabilities, threats and events in real time as well as to support future MSS Security Operation Center (SOC) services. The security analysts, pen testers and the managers are able to monitor, assess and generate reports more rapidly through a dynamic and interactive Rich Internet Application (RIA) user interface.

Figure 1.2 illustrates the modules of NX project.

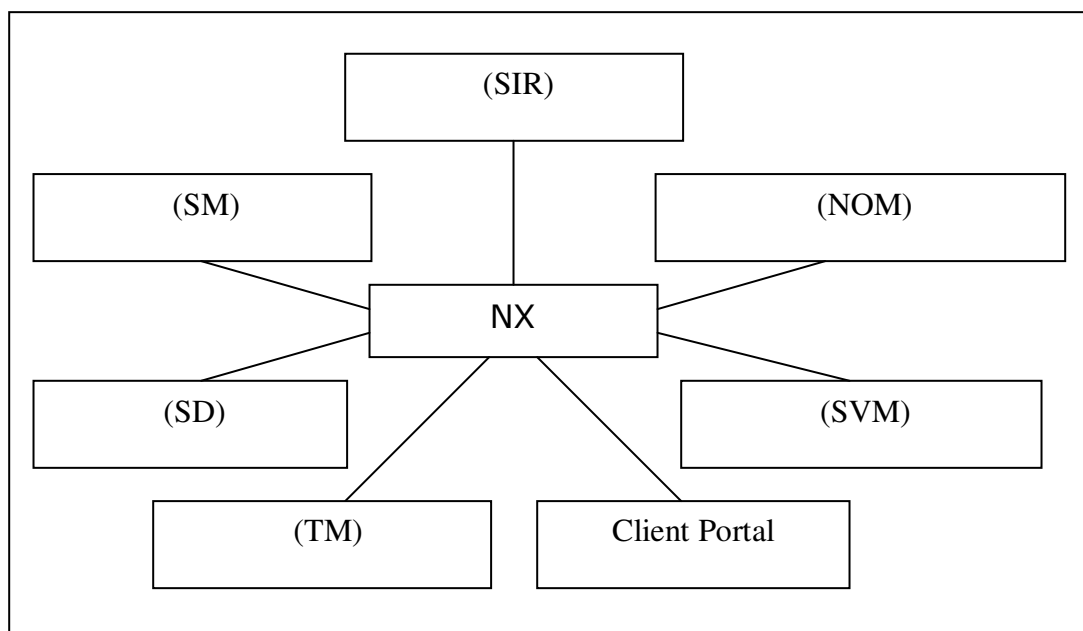


Figure 1.2 : Modules of NX Project

1.3 Project Objectives

The main objective of this project is to do Research and Development (R&D) on the suitability of Pentaho for this module. Below are the objectives of the project:

- i) To enable the system to provide the capability to display data in a chart or graph and make data interpretation much easier for Security Analyst. And
- ii) To improve the reporting tools and overcome the previous system's limitation for reporting module.

1.4 Project Scope

The scopes of the project are:

- i) Explore and study the new technology, Pentaho and the latest Security network monitoring software.
- ii) The core functionality is to display an interactive user interface for the reporting module and provide the flexibility for adjustment for various clients.
- iii) All the data are obtain from MySQL database.

REFERENCES

1. Pentaho Corporation (2008), Product Overview of Pentaho Open Source Business Intelligence, USA:
<http://www.pentaho.com/>
2. Roger S. Pressman, (2001), “Software Engineering – A Practitioner’s Approach”
USA: McGraw Hill
3. MySQLAB, (2005), “MySQL Language Reference”
USA: MySQL
4. Robert C Martin(1999), “Designing Object Oriented Application Using UML”, 2nd edition
Prentice Hall
5. Douglas Bell (2005), “Software Engineering for Student”
England: Addison – Wesley
6. Ian Sommerville (2001), “Software Engineering”
England: Addison – Wesley
7. University Teknologi Malaysia (2007), “UTM Thesis Manual”
Skudai: Universiti Teknologi Malaysia