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"I acknowledge that I have read this research report and in my opinion this research report is sufficient in terms of scope and quality for the award of Bachelor of Technology Management (Innovation)"

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THE ROLE OF CYBER SECURITY
AT VIZONE SOLUTIONS SDN BHD

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DECLARATION

"I declare that all parts of this report are the results of my own work except for the quotations and references, the sources of which have been acknowledged in the bibliography."

Signature   : …………………………………………….....

Name   : …………………………………………….....

Date   : …………………………………………….....

DEDICATION

For Ummy and Addy

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The researcher would like to first thank his parents for being there as a beacon of hope and guidance ever since the beginning. With much love and affection blended with the support given, the researcher was able to complete this research.

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ABSTRACT

In line with the growing trend of cyberspace, cyber security is being assembled to accommodate the also growing threat of cyber-crimes. Many Information Communications and Technology (ICT) vendors have taken this opportunity to publish and market their solutions and products that can help fight cyber-crimes. Cyber security has its role in every part of the cyber environment be it in the households or in organizations. Vizone Solutions Sdn Bhd is a company which deals with the cyber environment by providing services such a systems integration and network infrastructure development. Vizone also include cyber security in their services as well as utilizes cyber security methods in their organization. Facing the challenges of a growing cyber environment, Vizone and other organizations as well as the public users need to cope with the evolving threats that are present in the cyber environment. Cyber security has long been addressed ever since the cyber environment has come into being and is becoming a major focus with the increased use of the internet in everyday tasks. The researcher has identified this as a problem and will present his findings based on the research objectives and questions formulated. Concluding the research with significant findings from interviews and observations, the researcher also presents recommendations for the reference of both the public users and organizations. The researcher aspires that this research will make cyber security a larger area to be focused on in the future.

ABSTRAK

Seiring dengan aliran ruang siber yang semakin berkembang, keselamatan siber sedang dihimpunkan untuk menampung ancaman jenayah siber yang semakin bertambah. Banyak penjaja Teknologi Maklumat dan Komunikasi telah mengambil peluang ini untuk menerbit dan memasarkan penyelesaian dan produk mereka yang boleh membantu membanteras jenayah siber. Keselamatan siber mempunyai peranannya di setiap bahagian persekitaran siber sama ada di premis persendirian atau dalam organisasi. Vizone Solutions Sdn Bhd ialah sebuah syarikat yang berdepan dengan persekitaran siber dengan menyediakan perkhidmatan persepaduan sistem dan pembangunan infrastruktur rangkaian. Vizone juga merangkumi keselamatan siber dalam perkhidmatan mereka serta menggunakan kaedah-kaedah keselamatan siber dalam organisasi mereka. Di samping menghadapi cabaran persekitaran siber yang kian bertambah, Vizone dan organisasi lain serta pengguna awam perlu mengatasi ancaman-ancaman baru yang hadir di persekitaran siber. Keselamatan siber telah lama dikemukakan semenjak persekitaran siber telah wujud dan menjadi satu fokus utama dengan penggunaan jaringan yang meningkat dalam tugasan harian. Penyelidik telah mengenalpasti dilema ini sebagai satu masalah dan akan mengemukakan penemuan diperoleh berdasarkan objektif dan soalan kajian. Kajian disimpulkan dengan penemuan dari temuramah dan pemerhatian penyelidik. Penyelidik juga akan mengemukakan beberapa cadangan untuk rujukan kedua-dua pihak pengguna awam dan organisasi. Penyelidik bercita-cita bahawa kajian ini akan menjadikan keselamatan siber itu sebagai tumpuan pada masa akan datang.

CONTENT

LIST OF TABLES

LIST OF FIGURES

LIST OF ABBREVIATIONS

ICT	Information Communications Technology
IT	Information Technology
MP3	Moving Pictures Expert Groups Layer 3
MAMPU	Malaysian Administrative Modernization and Planning Unit
MCMC	Malaysian Communications and Multimedia Commission
SKMM	*Suruhanjaya Komunikasi dan Multimedia Malaysia*
CEO	Chief Executive Officer
IBM	International Business Machines
HP	Hewlett-Packard
TMS eKP	Transportaion Management System – Enterprise Knowledge Portal
API	Application Programming Interface
PHP	PHP Hypertext Processor
NRW	Non-Revenue Water
DoS	Denial of Service
DDoS	Distributed Denial of Service
FTP	File Transfer Protocol
DNS	Domain Name System
CD-R	Compact Disc-Recordable
DVD-R	Digital Versatile/Video Disc-Recordable
CD-ROM	Compact Disc-Read Only Memory
FBI	Federal Bureau of Investigations
NSA	National Security Agency
TEMPEST	NSA Codename
IDS	Intrusion Detection System

LIST OF ABBREVIATIONS

UNIX	Name of First Operating System
USB	Universal Serial Bus
AES	Advanced Encryption Standards
VPN	Virtual Private Network
TPM	Trusted Platform Module
BIOS	Basic Input/Output System
LE	Low Energy
NFC	Near Field Communication
iOS	iPhone Operating System
QR	Quick Response
TCP	Transmission Control Protocol
IP	Internet Protocol
SSL	Secure Sockets Layer
TLS	Transport Layer Security
PGP	Pretty Good Privacy
IPSec	Internet Protocol Security
IETF	Internet Engineering Task Force
AH	Authentication Header
ESP	Encapsulating Security Payload
IKE	Internet Key Exchange
SMTP	Simple Mail Transfer Protocol
HTTP	Hypertext Transfer Protocol
E-Mail	Electronic Mail
RFC	Request For Comments

LIST OF ABBREVIATIONS

MUA   Mail User Agent

MTA   Mail Transfer Agent

DES   Data Encryption Standard

CAST-128   Block Cipher or Encryption Algorithm

MIME   Multipurpose Internet Mail Extensions

ASCII   American Standard Code for Information Interchange

NVT   Network Virtual Terminal

MAC   Message Authentication Code

DNA   Deoxyribonucleic Acid

LIST OF APPENDICES

Chapter 1

Introduction

1.1. Background

In line with the growing trend of cyberspace, cyber security is being assembled to accommodate the also growing threat of cyber-crimes. Many Information Communications and Technology (ICT) vendors have taken this opportunity to publish and market their solutions and products that can help fight cyber-crimes.

Cyber security refers to "a measure for protecting computer systems, networks, and information from disruption or unauthorized access, use, disclosure, modification or destruction" (Gallaher, Link & Rowe, 2008).

Vizone Solutions Sdn Bhd is an ICT vendor which deals with systems integration and email application services. Vizone has an image to uphold as a ICT organization, therefore, they need to let clients believe that the can bring the best solutions. Besides being an organization that deals with ICT services, Vizone also offers cyber security solutions. However, the organization itself is facing a few problems dealing with cyber security.

1.2.   Problem Statement

People are unaware of the importance of cyber security. They tend to overlook the matter and settle for simple security measures and solutions that are easy to breach and do not guarantee protection. Despite the availability of various types of cyber security measures and solutions and the statutes made by the government, the role of cyber security in organizations is still not seen as a significant matter to look upon. Cyber security needs to be addressed in today's growing ICT age.

The awareness of the role of cyber security in Malaysia is still considered low compared to other countries despite the growing threats that are moving about in the cyber environment. The outside world has taken serious measures to ensure the security of their cyber environment is rigid unlike here in Malaysia. The consequences may be severe if so to say planned cyber-attacks carried out by hackers or even other countries. The security of Malaysia's cyber environment is still at its infancy. However, there are efforts from the government by enacting Data Protection Acts and policies for organizations and individuals to abide by.

Vizone Solutions is a small organization that offers ICT solutions to client organizations and mainly deal with government agencies. However, Vizone is facing some problems of their own. The cyber security at Vizone is low and they have no means to address the problem. Thus, this is timely for the study of the role of cyber security at Vizone Solutions Sdn Bhd.

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1.3. Research Questions

The researcher has set a few research questions as follows:

- Why is cyber security important?

- What is the role of cyber security in organizations?

- What are the methods of cyber security that are available for Vizone?

1.4. Research Objectives

The researcher has listed out a few research objectives that will be focused on:

- To explore the importance of cyber security

- To study the role of cyber security in an organization

- To examine the cyber security methods used by Vizone Solutions

1.5. Scope and Limitation

The scope of this research has been set around to focus on cyber security and how preventive measures can be taken to secure and protect technology and in particular, data. The researcher only studies the roles, importance and methods of cyber security in Vizone Solutions Sdn Bhd.

The research will be a case study of the company, Vizone Solutions Sdn Bhd and this is because it has relations with the researchers' former place of industrial training attachment.

The researcher will not cover the laws and legislations. There will be no further research done on the security standards set by governing bodies.

1.6.   Significance of the Study

This research has much significance because it bears the weight of the future of ICT and in particular in Malaysia. The internet and its clump of technology has brought much development to the country and the world but along the way cyber security must also be addressed. The roles of cyber security will not only be made clear but also it will be viewed as a significant part of ICT protection. The researcher would also like to initiate this research to be a start of a new focus in the field collaboration of technology management and cyber security.

The researcher will also be able to learn the importance of cyber security in organization and it will become a reference study for other organizations in the future. The researcher will also get to explore the various types of cyber security measures that are available.

This research will also help organizations like Vizone to control their business sustainability because cyber security breaches can be damaging to a company and may result in business failures.

1.7.   Summary

This research is conducted mainly to study the role of cyber security in organizations. By formulating research question and having research objectives, the researcher can strengthen his research focus. This research will further discuss the methods and specific measures that can be taken to perform cyber security measures.

Chapter 2

Literature Review

2.1. Factors that Effect Cyber Security

Cyber security refers to "a measure for protecting computer systems, networks, and information from disruption or unauthorized access, use, disclosure, modification or destruction" (Gallaher, Link & Rowe, 2008).

Muniandy (2012) proposed a theory that there are three major factors that govern cyber security which are technology, organization and human. Technology factor refers to the technology that can play a major role in providing protection to the cyber citizen. Technology can be in the form of hardware or software or a combination of both. Human refers to the users of cyberspace. She went on to explain that organization is divided into two which are the special agencies formed by the Malaysian government and the acts enacted by the government.
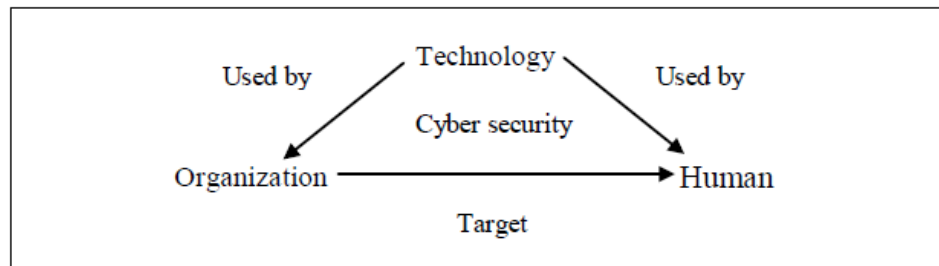
Figure 2.1: The three factors governing cyber security and the relationship between them (Muniandy, 2012)

The researcher agrees that the technological factor and the human factor is true. But as for the organization, it should be defined as the unit or body being attacked by the cyber terrorist whether it be a big enterprise or a personal business. As for the government and the law, it is a different factor whereby the governance encompasses the other three factors.
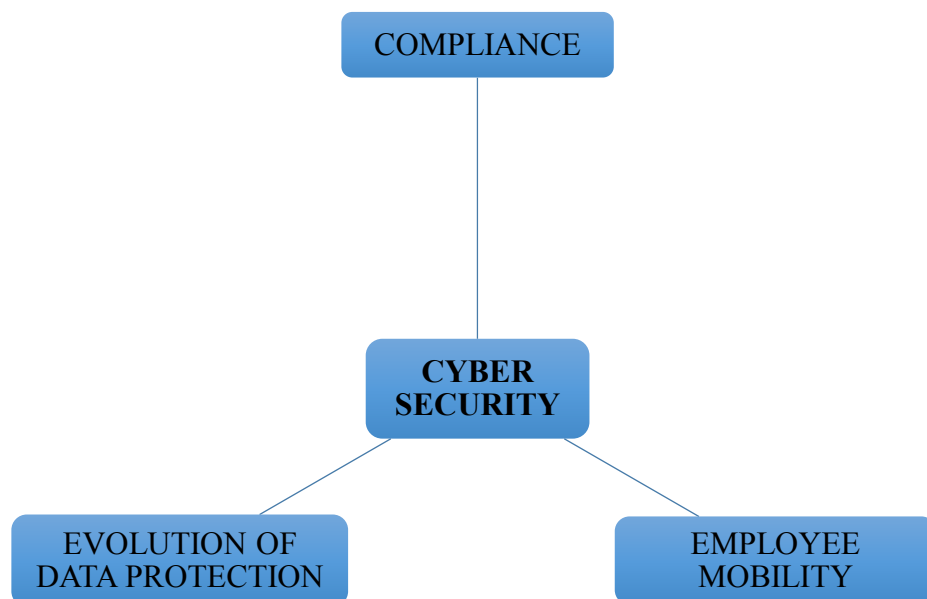

Figure 2.2: Factors affecting cyber security in organizations (Quane, 2013)

As for cyber security in an organization, Quane (2013) discusses in Figure 2.2 that there are three factors that influence it which are compliance, employee mobility and the evolution of data protection. The researcher strongly accepts this discussion as employee mobility in an organization can be managed but the outcome can never be anticipated.

The evolution of data protection on the other hand is like a rolling ball of snow. It will increase in volume but the direction too cannot be anticipated. We can see so much of expansion in the cyber environment is all aspects whether it be in its technological evolution to its social influence.

Compliance of all parties, whether it be from the organization or employees or even the vendors solution can be controlled. No matter how it may be, these three factors are the main factors of technology protection when it comes to an organizational perspective.