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ROUTER WEBADMIN SYSTEM

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This report is submitted in partial fulfillment of the requirements for the
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UNIVERSITI TEKNIKAL MALAYSIA MELAKA
2007

DECLARATION

I hereby declare that this project report entitled

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is written by me and is my own effort and that no part has been plagiarized without citations.

STUDENT : _____ Date: 12.11.2007

(NURDHIYA SAFRA BINTI AB WAHID)

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(EN. NAZRULAZHAR BIN HAJI BAHAMAN)

DEDICATION

Specially dedicated to
my beloved parents, my siblings and my family, who have encouraged, guide and inspired me throughout my journey of education. Also I would like to dedicate this special thank to my friends and my colleagues.

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ABSTRACT

Router WebAdmin System is a web-based user interface (WBUI) design system that will be used for router configuration. Router WebAdmin system was develop in HTML and PHP script, which can be running in any operating systems, without any requirement. This Router WebAdmin system project designed to help user to configure a router in effective way. Besides that it helps and facilitate user to configure router even for the user that had no experience in configuring the router. This project include complete router configuration in web-based platform. The Router WebAdmin system also included the entire basic router configuration that required making the router operate completely. In this system, user will configure the router using the TCP connection (TELNET) connection. One interface used for one router configuration. User will be able to configure the router using the button that includes the router configuration command which is totally graphical system router configurations. This system can be running anywhere, anytime as long as connected with the server in intranet network environment.

ABSTRAK

Sistem Router WebAdmin adalah merupakan antaramuka pengguna berasaskan web yang digunakan untuk mengkonfigurasi *router*. Sistem Router WebAdmin dibangunkan dengan menggunakan skrip HTML dan PHP yang boleh di akses mana-mana sistem pengoperasian tanpa memerlukan sokongan. Projek Router WebAdmin direka untuk membantu pengguna dalam mengendalikan dan mengkonfigurasi *router* dalam cara yang terbaik selain membantu pengguna baru dan yang tiada pengalaman dalam mengkonfigurasikan *router*. Projek ini sepenuhnya merangkumi konfigurasi router dalam platform berasaskan web. Sistem Router WebAdmin juga merangkumi konfigurasi router yang biasa digunakan untuk mengoperasi router sepenuhnya. Dalam sistem ini, pengguna mengkonfigurasi router dengan menggunakan hubungan dalam TCP (TELNET). Pengguna juga dapat mengkonfigurasi router dengan menggunakan butang yang dilengkapi arahan konfigurasi router yang sepenuhnya berunsurkan sistem grafik. Sistem ini dapat digunakan dimana dan bila-bila masa sahaja selagi berhubung dengan *server* dalam persekitaran rangkaian setempat.

TABLE OF CONTENTS

CHAPTER II LITERATURE REVIEW AND PROJECT METHODOLOGY

CHAPTER III ANALYSIS

CHAPTER V IMPLEMENTATION

CHAPTER VI TESTING

CHAPTER VII PROJECT CONCLUSION

LIST OF TABLE

LIST OF FIGURE

LIST OF ABBREVIATIONS

OSI	-	Open System Interconnection
WWW	-	World Wide Web
HTML	-	Hypertext Markup Language
HTTP	-	Hypertext Transfer Protocol
WBUI	-	Web-based user interface
PHP	-	Personal Home Page
IOS	-	Internetwork Operating System
ICT	-	Information Communication Technology
IP	-	Internet Protocol
IT	-	Internet Technology
CLI	-	Command Line Interface
GUI	-	Graphic User Interface
RAM	-	Random Access Memory
LAN	-	Local Area Network
GB	-	Giga Byte
PSM	-	Projek Sarjana Muda
NVRAM	-	nonvolatile RAM
ROM	-	Read Only Memory
DFD	-	Data Flow Diagram
GPL	-	General Public License
OSPF	-	Open Shortest Path First
RIP	-	Routing Information Protocol

CHAPTER I

INTRODUCTION

1.1 Project Background

A router is a layer 3 computer networking device that buffers and forwards data packets across an internet work toward their destinations, through a process known as routing. A router acts as a junction between two or more networks to buffer and transfer data packets among them. It also known as a network devices that forward packets of data between different networks. A router is different from a switch and a hub where router is working on layer 3 of OSI model, while switch on layer 2 and a hub on layer 1.

Unlike switch or bridges, which are virtually transparent and easy to implement, router are much more intrusive in a network. Routers forward and filter packet based on layer 3 addresses, such as IP address. This means that a network addressing scheme must be carefully planned and laid out before successfully implement routers into a network. One important feature that distinguishes a router from a bridge or switch is the fact that it does not forward broadcasts by default. Like bridges, a router creates separate collision domains, but also creates separate broadcast domain.

According to the existence system, normally user will manually insert the command-line technique to configure the router, using Microsoft Hyper Terminal Software. Command-line interfaces, where the user provides the input by typing a

command string with the computer keyboard and the system provides output by printing text on the computer monitor. The complex command line make user difficult to remember, except the experience users, like network administrator can manage to configure the router successfully. The Router WebAdmin system is design to help the user, like network administrator to configure a router in an effective and easy way, in web-based platform environment.

The Router WebAdmin system is a web-based user interfaces that accept input and provide output by generating web pages which are transported via the Internet and viewed by the user using a web browser program. Web pages can be retrieved from a local computer or from remote web server. The web server may restrict access only to a private network, example a corporate intranet, or may publish pages on the World Wide Web (WWW). Web pages are requested and served from web servers using Hypertext Transfer Protocol (HTTP). Web pages are a type of web document. Web pages may consist files of static text, stored within the web server's file system (static web pages), or the web server may construct the Hypertext Markup Language (HTML), for each web page when requested by browser, a dynamic web pages. Web pages can make more responsive to user input once in the client browser.

This Router WebAdmin system project designed to help user to configure a router in effective way, besides it help and facilitate user to configure router even for the user that had no experience in configuring the router. This project include complete router configuration in web-based platform. The Router WebAdmin system also included the entire basic router configuration that required making the router operate completely. This system will help the beginner network administrator or user to configure router, where they only click the button that include the router configuration command but only a few data need to be insert, like IP address of the computer. This system will more to setting configuration for the router included the router routing type.

The Router WebAdmin system is a web-based user interface (WBUI) design system for router configuring where using HTML and PHP script. This system can be access using web browser and the router is connected with the main computer. User can used this system to configure the router wherever there go as long as router has connection between their computers. This system only can be access for intranet used only.

The scripting that be used in the Router WebAdmin system is HTML and PHP. HTML, short for Hypertext Markup Language, is the predominant markup language for the creation of web pages, while PHP is used mainly in server-side scripting, but can be used from a command line interface. HTML is an ordinary text that has been dressed up with extra features, such as formatting, images, multimedia and links to other documents. Personal Home Page (PHP) is a reflective programming language, originally designed for producing dynamic web pages. PHP is an open source scripting, where become most popular scripting in the world now.

1.2 Problem Statement

A HyperTerminal command-line interface is the common router configuration system that had been used by user to configure the router. There are some problem that occur with the existence system where the complex command-line are uses to configure the router. User especially the beginner might have problems during configures the router because the configuration involved a lot of command-line.

A HyperTerminal also doesn't have guidance to configure the router, especially for beginner user and other network administrator to use the command-line configuration. The use of hyper terminal also take a lot of time to configure because the system involves a lot of complex command and make user hard to remember each of line the command router configuration.

Beside that, other system that used to configure the router is in standalone version. It difficult to user for configures or setup the router performance, where they need connect direct from the computer to the router.

1.3 Objective

The objectives of this project are,

- To implement a web-based user interface or client-server system for router configuration.

- To exchange usage of the complex command-line to GUI because the complex command line are hard to remember and sometimes user get confuse to use it. The button usage will replace the complex command-line configuration.

- To make the several command router configuration, example like configuring router name, routing table, show running.

- To make router configuration based on web-based user interface easier , faster than existing system, user friendly and make the system easier to used, even for beginner user. It also is a remote configuration for configuring Cisco router.

1.4 Scope

The project scopes are,

- To configure the router in web-based platform based on the function that available in system in easy way and user-friendly.

- Adding router configuration options including the advance router configuration such as routing protocol configuration options, based on web-based platform.

- Target user for this project is a network administrator, network engineer and for the beginner user.

- Help beginner user or network administrator to configure the router configuration in easy way.

- Limited in Local Area Network, where at least five different network environment.

1.5 Project Significance

The Router WebAdmin system is giving more benefit for network administrator and other network user to configure the router. By using web-based user interfaces, user will configure the router easier than command-line coding. User only needs to choose the command of router by clicking the button that generated with command for configuration, which applies in this system.

To configure the router, it can view by the user using a web browser program, like Internet Explorer, Mozilla Firefox and others web browser program. That's mean, user can configure the router whenever there are as long as the router are have connection between their computer or to main computer, called as computer server. This system also make user to configure the router faster and easier than existing system that exist.

1.6 Expected Output

The expected output of the Router WebAdmin system is to implement and develop a new system for router configuration. The new system will be able become user-friendly, easier and faster than existence system that exist. Towards to complete this system, it is expected that this system would be widely used as alternative tools for network administrator to configure the router. Beside that, Router WebAdmin system may help user to understand more about configures the router.