

## BORANG PENGESAHAN STATUS TESIS

JUDUL: **AUTO DETECTION NETWORK MONITORING SOFTWARE FOR SINGLE VLAN (AutoD).**

SESI PENGAJIAN: **2007/2008**

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**AUTO DETECTION  
NETWORK MONITORING SOFTWARE FOR SINGLE VLAN (AutoD)**

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This report is submitted in partial fulfillment of the requirements for the  
Bachelor of Computer Science (Computer Networking)

**FACULTY OF INFORMATION AND COMMUNICATION TECHNOLOGY  
UNIVERSITI TEKNIKAL MALAYSIA MELAKA**

**2007**

## DECLARATION

I hereby declare that this project report entitled  
**AUTO DETECTION**  
**NETWORK MONITORING SOFTWARE FOR SINGLE VLAN (AutoD)**

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

  
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## DEDICATION

*Specially dedicated to my beloved family members who have  
encourage, guide and inspired me through my journey of education  
my lecturer, friends and colleagues.*

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Throughout the completing this PSM, a lot of experience had I gained in writing this documentation. Hence, I would like to express my appreciations to everyone that have contributed towards the success of my PSM. I would like to thanks those who are not mentioned here but have directly or indirectly helping and guiding me towards completing my PSM, your help and time are much appreciated.

I would like to take this opportunity to thank my supervisor, Mr. Mohd Faizal Abdollah for patience helping, advice, full attention, encouragement and professionalism throughout the time. He is a very kind and patient lecturer who tolerated from the beginning of the document to the completion. Thank you...

It is therefore difficult to name all the people who have directly or indirectly helped me in this effort; an idea here and there may have appeared insignificant at the time but may have had a significant causal effect. However, special thanks and apologies must first go to my family, who over the duration has been neglected even ignored, during my deepest concentrations.

All the experiences and knowledge that I have gained from all are very valuable and thankful. Thank you for giving me better perspective.

## ABSTRACT

Network monitoring software is the software that provides real time view of individual user activity on the network. This Software develops to ease user to make analysis important services in operating system. There are five important services can be monitor such as Post Office Protocol version 3 (POP3), Hypertext Transfer Protocol (HTTP), Simple Mail Transfer Protocol (SMTP), File Transfer Protocol (FTP) and Telnet. This auto detection network monitoring software for single VLAN developed using java programming language where NetBeans and JCreator as a software development tools. The interface of this system designed with simple function to ease user to understand the services result. The system can function at Microsoft Windows XP Service pack 1 and 2, Microsoft Window 2000, Microsoft Windows Server 2000 and Microsoft Windows Server 2003. Ping protocol used for detecting the client computers hostname and port, by detecting the inetaddress to find the client IP Address.

## ABSTRAK

Perisian pemantau rangkaian adalah perisian yang menyediakan pandangan masa nyata aktiviti pengguna secara individu pada rangkaian. Perisian ini dibangunkan untuk memudahkan pengguna membuat analisis perkhidmatan penting di dalam system pengoperasian. Lima perkhidmatan di dalam system pengoperasian tersebut adalah Protokol Pejabat Posl versi 3 (POP3), Protokol Pemindahan Hypertext (HTTP), Protokol Pemindahan Mel Ringkas (SMTP), Protokol Pemindahan Fail (FTP) dan Telnet. Perisian pemantau rangkaian dibangunkan menggunakan bahasa pengaturcaraan java di mana NetBeans dan JCeator adalah sebagai peralatan pembangunan perisian. Permukaan system ini direkabentuk dengan fungsi-fungsi yang mudah untuk memudahkan pengguna memahami keputusan perkhidmatan. Sistem ini juga mampu berfungsi pada Microsoft Windows XP Service pack 1 and 2, Microsoft Window 2000, Microsoft Windows Server 2000 and Microsoft Windows Server 2003. Protokol *ping* digunakan untuk mengesan nama komputer dan port komputer pelanggan dengan cara pengesanan *inetaddres* untuk mendapatkan Alamat IP pengguna .

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## LIST OF ABBREVIATIONS

<b>ACRONYM</b>	<b>WORD</b>
IP	Internet Protocol
DNS	Domain Name Server
HTTP	Hypertext Transfer Protocol
SMTP	Simple Mail Transfer Protocol
SNMP	Simple Network Management Protocol
FTP	File Transfer Protocol
TELNET	Teletype Network
JCreator LE	JCreator Lite Edition
SNMP	Simple Network Management Protocol
LAN	Local Area Network
OS	Operating System
TCP	Transmission Control Protocol
UDP	User Datagram Protocol
HP-UX	Hewlett Packard UniX
MX	Mail Exchanger
IETF	Internet Engineering Task Force
ASCII	American Standard Code for Information Interchange
MRTG	Multi Router Traffic Grapher or just simply
HTML	Hypertext Markup Language
SDLC	System Development Life Cycle



IDE	Integrated Development Environment
CSS	Cascading Style Sheet
WBS	Work Breakdown Structure
RAM	Random Access Memory
UTP	Unshielded Twisted Pair
NIC	Network Interface Card
PC	Personal Computer
POP3	Post Office Protocol Version 3
DHCP	Dynamic Host Configuration Protocol
SSH	Secure Shell
IGMP	Internet Group Management Protocol
ICMP	Internet Control Message Protocol
IRC	Internet Relay Chat
RPC	Remote Procedure Calls
TLS	Transport Layer Security
NNTP	Network News Transfer Protocol

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# CHAPTER I

## INTRODUCTION

### 1.1 Project Background

Network monitoring software is software that provides real-time view of individual user activity on a network. It provides administrators with the ability to view the content of user utilized applications. Network Monitoring is a complex activity that is based on the coordination among distinct local activities, those that use monitoring results, those that implement monitoring activity and other that act as intermediaries.

Network monitoring describes the use of a system that constantly monitors a computer network for slow or failing systems and that notifies the network administrator in case of outages via email or pager. It is a subset of the functions involved in network management. A network monitoring systems monitors the network for problems due to overloaded or crashed servers, network connections or other devices.

The purpose of this project is to develop a network monitoring software applicable to monitor five important services that is Post Office Protocol version 3 (POP3), Hypertext Transfer Protocol (HTTP), Simple Mail Transfer Protocol (SMTP), File Transfer Protocol (FTP) and Telnet.

This network monitoring can help organization to monitors critical network service and immediately detect system failure. This software performs several basic functions available at similar with others software but adding with some function to enchantments for this software. This software uses by server with large users such as company server, factory server and government department server for their analysis the network automatically.

## 1.2 Problem Statement

Below show some of the current problems about monitoring the software that give the reason to develop new monitoring software:

- i. Some of the advanced network monitoring is using technique manually to scan the host and port. By using the software, user must insert the Internet Protocol (IP) or the Domain name of the client host one by one. It is difficult to do so because user must insert the IP or domain name of the host client manually, apart from that it is also caused the process to obtain information slower.
- ii. Some of the network monitoring software does not have sufficient storage to store the previous network services information. The software cause the user cannot view or analyse the past network services information from that software.
- iii. Some of the software is also difficult to understand because by using many complex functions. User has to take a long time to see software button and understanding the software. Some of the monitoring software is not user friendly and don not use Malay language.

### 1.3 Objectives

There are 4 main objectives to develop the network monitoring software as are listed below:

- i. To create network monitoring software automatically to scan the host as well as the services by ping protocol.
- ii. Develop network monitoring software for network services such as Post Office Protocol version 3 (POP3), Hypertext Transfer Protocol (HTTP), Simple Mail Transfer Protocol (SMTP), File Transfer Protocol (FTP) and Telnet.
- iii. To make a network monitoring software able to record and store the past report services. Every new information services report would be kept in the log file.
- iv. To develop the user friendly network monitoring software. The services report, log file as a storage and have simple function such as host status an easy to read and understanding. In term of language, this software develops with Malay language.

### 1.4 Scopes

The scope of this project is to build a network monitoring software that automatically scans the host and port to detect the services. The software can monitor client PCs services such as POP3, HTTP, SMTP, FTP and Telnet. Ping protocol is used to develop connections between server and client. The software detects the host using ping technique. This monitoring software is developed by using NetBeans 5.5.1 programming as the interface and by using java programming language for the prototype software. The software has simple interfaces and it displays only the

important information like status of services, status client online. As proposed of this software, it is used to monitor status of services and to issue the services status with report. The past service report is stored by notepad has the software storage.

#### **1.4 Project Significance**

The significance of this software is to monitor the operating system services at immediate response time. These users could troubleshoot the services quickly. Another that, the software also provides services network report such as Internet Protocol (IP) address, subnet mask, and operating system services like POP3, HTTP, SMTP, FTP and Telnet. User is easy to understand and evaluate status of services because this software has SNMP tools such as graph services and pie chart. The pie chart and graph can show the percentage about host online information and the offline information for every few minutes.

#### **1.5 Expected Output**

The main purpose of this project is to develop new a network monitoring software for Malay language version. When this network is to monitor software complete, this software has the potential as it is easy to use and user friendly compared to existing software. This monitoring software interface has a normal size window and user can view the services from the easy interface and button. Other than that, when users want to view the status user online and offline by graph and pie chart, users just can click the button to view the analysis. This software is also indicating the operating system services status. Generally, the software can monitor five types of services that is Office Protocol Version 3 (POP3), Hypertext Transfer Protocol (HTTP), Simple Mail Transfer Protocol (SMTP), File Transfer Protocol (FTP) and Telnet.

## 1.6 Conclusion

From this chapter, by reviewing the problem statement is about the current network monitoring software. From this, the objective and scope is made for the solution about the problem. Network monitoring software approaches is the widely used software nowadays. There are 3 main objectives to develop this network monitoring software for facility to users.

From the literature review and project methodology of chapter 2, it is discussing the concept behind the software application. Review for an existing system application to be developed, it discusses about the problem that has occurred as well as the pro and contra behind it. Research will be familiar with the basic concepts and technologies that are mentioned in the literature review and in the project methodology

## **CHAPTER II**

### **LITERATURE REVIEW AND PROJECT METHODOLOGY**

#### **2.1 Introduction**

This chapter will discuss the concepts behind the network monitoring software or application. The main objective of this literature review and project methodology is to review an existing system or application to be develop, and to discuss about the problem occurred and pros and cons behind the network monitoring software.

Literature review is a process to search, collect, analyse and concluded all debates and issues raised in the work that been done in the past. It also provide the examples, case studies and other relevant work that be done by other people in the past, it gives the chance to investigate areas and read the subject that user may not have thought about before.

While, project methodology will discuss detail about type of methodology, techniques, hardware or software requirements and project planning to develop the project, so that the planning for the project proposed to meet project objectives, scopes and requirements. Besides, project methodology is also important as a guideline of activities for developers to follow and obey. There are a lot of methodology exists and depends on developers to choose the suitable one. Usually, it will be choosing according to project or system description.