Remote Network Monitoring System (RNMS)

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Dedicated to my father Naser Al-Hasanat, my mother, my brothers,

my sisters, and to you my beloved wife …

ABSTRACT

Nowadays, computer networks become very complex. Thousands of nodes distributed in various places. Within this complexity, it has become impossible task to monitor large networks by human effort only. Thus, there are urgent needs to find convenient solutions to help networks managers in managing and monitoring their networks.

This study presents a monitoring system, named Remote Network Monitoring System (RNMS). The proposed system empowered the networks mangers to remotely monitor their network's computers. Therefore, a web-based monitoring system has been designed using UML models, and then the system has been developed using ASP.Net with VB.Net scripts. The proposed system is based on SNMP (Simple Network Management Protocol). The SNMP provides efficacious means to access the remote agent's MIB's (Management Information Base) objects. Furthermore, this study has evaluated and tested the RNMS using the verification test (unit, integration, and system testing), and the validation test (user acceptance test) based on TAM (Technology Acceptance Model).

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List of Abbreviations

RNMS	Remote Network Management System
SNMP	Simple Network Management Protocol
MIB	Management Information Base
MIB-II	Management Information Base II
FCAPS	Fault, Configuration, Accounting, Performance, and Security
NMS	Network Management Station
UUM	University Utara Malaysia
LAN	Local Area Network
WAN	wide Area Network
TCP/IP	Transmission Control Protocol/Internet Protocol
IETF	Internet Engineering Task Force
RMON	Remote Monitoring
RFC	Request for Comments
SNMPv1	Simple Network Management Protocol Version1
SNMPv2	Simple Network Management Protocol Version2
SNMPv3	Simple Network Management Protocol Version3
UDP	User Datagram Protocol
IP	Internet Protocol
OSI	Open System Interconnection
OID	Object Identifier
CPU	Central Processing Unit
MAC	Media Access Control address
UML	Unified Modeling Language
TAM	Technology Acceptance Model
PU	Preserved Usefulness
PEU	Preserved Ease of Use
SPSS	Statistical Package for the Social Sciences

CHAPTER ONE

INTRODUCTION

1.1 Introduction

This chapter provides a quick glance about the study; the background of the study, problem statement, objectives, expected contribution, scope of the study, research framework, and structure of thesis.

1.2 Background

In today's complex networked environments, where a network can range in size from a few nodes to thousands of nodes the way in how you monitor and manage your network devices is very important issue. This growing networks environment has to be managed in an effective way to derive the maximum benefit out of it. Network management comes for this reason it trades with controlling and monitoring the network devices in order to ensure its undisturbed and efficient operation.

The contents of the thesis is for internal user only

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