UNIVERSITI TEKNOLOGI MARA

ENHANCED NAGIOS CORE IMPLEMENTATION IN NETWORK MONITORING

HASRUL AZWAR ISMAIL @ ISHAK

Dissertation submitted in partial fulfilment of the requirements

for the degree of

Master of Science (Computer Networking)

Faculty of Computer and Mathematical Sciences

Jan 2014

ACKNOWLEDGEMENT

ABSTRACT

The rapid growth of network technology currently allows the diversity and integrated of network equipment with each other. With these increases, manage network equipment's heterogeneity is a big challenge to network administrators. The network monitoring system is essential for straightforwardly and quickly managing the network equipment's. Through this research, an open source application was used to monitor and analyze network equipment and data centers. An open source tool is used because it can manage simply and efficiently. Other than that, an open source application is preferred because it is free and all the codes are open. The network monitoring tools also can be modified to suit with the existing network environment. Nagios Core was chosen to be used in this research. The main objective of this research is to enhance Nagios Core implementation in configuration management, visualization, graphing system and notification alert. The next objective is to test the effectiveness of enhancing Nagios Core implementation in monitoring and analyzing UNISEL network and data center. Default version of Nagios Core is not user friendly. The notification alert process also matters to be considered in this research. This is important because the network monitoring system and data centers need to be equipped with the ability to provide instant notification. This is essential to allow for immediate action by the network administrator.

TABLE OF CONTENTS

CHAPTER 1

INTRODUCTION

1.0 Introduction

This dissertation is about a research on enhancing Nagios Core implementation in network monitoring. Network monitoring system is a subset of the function involved in Network Management System (NMS). A network management can represent from a different thing to different people depending on the work field. In general, network management is a service that employs a variety of tools, applications and devices to assist the network manager or network administrator in monitoring and maintaining networks. Network monitoring varies from simple one-device applications to a complex hierarchical and distributed system. Monitoring has always been an important part of the management system activities. With the growing number of clients and the resulting raise of the probability of network failures, a network monitoring is becoming even more important in order to minimize the impact of an infrastructure failure on the system productivity, particularly on large scale network environments (1). A network monitoring system can help the network managers by detecting network faults before any complaint from a user (2). Nagios Core was chosen for this research because it is a powerful monitoring system that enables organizations to identify and resolve IT infrastructure problems before they affect critical business processes (3).

Generally, these researches focused on enhancing Nagios Core implementation in network monitoring. The enhance Nagios Core implementation process is comprised