

UNIVERSITI TEKNOLOGI MARA

**DESIGN, IMPLEMENTATION AND EVALUATION OF
VIRTUAL ROUTING FOWARDING**

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ABSTRACT

A network-based virtual network architecture by using fundamental routing mechanism is proposed. This mechanism is a virtual overlay network based, involving a number of sites as well as tunnels connectivity spanning to those sites. The technology employs a single router intents and purposes, but allowing multiple instances of a routing table to exist in a router and work simultaneously. A method is studied that enables a creation of single virtual system containing components spread across multiple locations. Virtual systems have become a popular as a result of the flexibility and cost savings. This method can be deployed in the current network with little investment and it is easy to implement. The simulation results show its performance is better than the current environment. The simulations are performed using GNS3 simulator.

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CHAPTER 1

INTRODUCTION

1.1 Introduction

In recent years, a lot of changes have been made in the core of IP and networking markets. We continue to see more and more about newer technologies in this on-demand infrastructure, while companies trying to find their way to make these technologies work while decreasing the impact of the initial investment. This could mean by consolidating common technologies which can deliver separation across both a shared infrastructure and shared devices without adding any costly unneeded circuits [1].

Virtual routing helps to develop effective networking strategies. According to a study was carried out on router virtualization, if virtualization capabilities are exercised, some operations and hardware costs can be saved [2]. One of these effective techniques is called Virtual Routing Forwarding (VRF). Virtual Routing Forwarding (VRFs) technology [3] enables the creation of a single virtual system containing components spread across multiple locations. This technique is practicable for enterprise that has networks of overlapping IP addresses or to separate segments from other user. This technique effectiveness provide the ability for multiples user to share network resources and to reduce costs while providing secure network services to diverse user communities.