

UNIVERSITI TEKNOLOGI MARA

**OPTIMIZING NETWORK OF THE VDI
SERVER USING MULTI NICs WITH
SOFTWARE DEFINED NETWORKING
(SDN)**

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ABSTRACT

The demand of the Bring Your Own Device (BYOD) has been increasing from day to day since the use of the mobile devices became popular on 2010. Nowadays, many organizations already support BYOD and some of organization considering to supporting it because BYOD have many advantages such as increasing employees' productivity and able to reduce organization cost. In BYOD environment, employees using their mobile devices accessing to their virtual corporate desktop via network to the centralized Visual Desktop Infrastructure (VDI) server. It can be concluded that VDI is the key enabler for the BYOD that created multi number of virtual desktop hosted on the remote server for user or employees to access. Handling multi connection and many clients accessing to the centralized VDI server may cause of latency and delay because of limited of bandwidth. To provide a greater bandwidth, uninterrupted service and best user experiment, server can optimize and improve the connectivity between server and network switch by leverage multi Network Interface Card (NICs) that has been installed on that server. Several approaches can be considered in this scenario and this paper will apply Software Defined Networking (SDN). The OpenFlow-based SDN is able to provide a greater bandwidth and do traffic prioritization and dynamic path-selection in multi path environment. One (1) program will be developed to instruct the OpenFlow-based SDN Controller for route modification. The evaluation of the SDN approach will be conducted by comparative study between legacy network technology and other approach such as NIC Bonding. After all have been tested, result from the comparative study shows that SDN and its features are able to optimize network of the VDI server.

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CHAPTER ONE

INTRODUCTION

Chapter One of this research project is an introduction of the project. This chapter covers background of study of BYOD, VDI, Multi NIC approach and SDN. Other sub topics that also covered in this chapter are Problem Statement, Research Questions, Research Objectives, scopes, Significance of Research and Dissertation Organization.

1.1. Background of study

BYOD or Bring Your Own Device is a phrase refer to employees who bringing their own mobile devices such as bring their own computers, tablets, PDAs, smartphones or other devices into the work place for work purposes. BYOD phenomenon has been increasing since tablet devices become popular in 2010. Nowadays, many organization already supporting BYOD, and the Government of Malaysia also considering to supporting it because BYOD have many advantages such as increasing employees' productivity and able to reducing organization cost (Wang, Y., Wei, J., & Vangury, K., 2014). Employees are showing an improved level of satisfactory and productivity because they can use their own devices that they are comfortable with. The organization also able to reduce operational cost which save on the cost of purchasing computers or tablets for employees.

Several of the organization has already created a BYOD policy to allow employees to bring their own mobile devices to accessing organization information and applications via Virtual Desktop Infrastructure (VDI). VDI is a key enabler for BYOD and has the ability to turn mobile devices such as laptop, tablet PC and smartphones to be a productivity tools rather than only for personal use.

VDI is a virtualization technique that enabling employees of the organization access to their corporate desktop which is hosted on a remote server over the network. In the VDI technique, the corporate desktop running virtually on the server in the Data Center and it's accessibly remotely by employees from any mobile devices. This is