UNIVERSITI TEKNOLOGI MARA

I-FIREWALL: DYNAMIC LINUX FIREWALL RULE UPDATE USING ANSIBLE

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ABSTRACT

Nowadays, the cyber-attack case has increasing rapidly in our world as our culture of using the network as the network become our needed in our daily life. So, in order to mitigate the attack from intrude into our network, network security is needed in this case such as Firewall. Firewall is a system design to prevent unauthorized access to or from a private network. Nowadays, the network threat is dynamic and rapidly changing, thus we need a mechanism to dynamically update the firewall rules without hassle. I-Firewall: Dynamic Linux Firewall's Rule Update Using Ansible will be run in VMware as the platform. This security system will be develop using Python programming language and used in a Linux OS. This system will be develop using the automation tools which is Ansible that is function as the update rule's firewall and monitoring server. From this project, the security of the network will be more secure as it uses automatic update rule if new threat is detected. This project will be focus more on the home network user only. This project aims are to develop a security that is more secure for the network using this I-Firewall.

Keywords: Firewall, Automation, Malware, Cyber threat

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CHAPTER 1

INTRODUCTION

1.1. Background of Study

A network security system designed to stopped unauthorized access to or from a private network was the concept of a firewall. But as the viruses and hackers became more active, motivated and more technical, a better protection for protecting a company network and privacy information was needed. According to 2008 report on the us-cert government website, over 200 new trojan and viruses and untold number of variants were released each month. With a current world estimated population of 7. 8 billion, there were approximately 4. 79 billion (61. 4%) people worldwide that had access to and used the internet frequently (federal communications commission (fcc))

From the year 2000 to 2019, the usage of the internet increased by 1,157%. The increased in the internet usage make the potential of the hackers and viruses to attack the network increased. As the usage of internet increased drastically, the cybersecurity threat also increase as more important information can be gain for the hackers to make their own money. A threat to cyber security is a malicious act that aims to destroy data, steal data, or otherwise disrupt digital life. Threats such as computer viruses, data breaches, and Denial of Service (DoS) attacks include cyberattacks.

As Gartner explains, "cybersecurity risks pervade every organization and aren't always under its direct controlled. One of the most important obstacles that could