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### **RESEARCH ARTICLE**

# The Study of Network Security with Its Penetrating Attacks and Possible Security Mechanisms

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Abstract- Security is a fundamental component in the computing and networking technology. The first and foremost thing of every network designing, planning, building, and operating a network is the importance of a strong security policy. Network security has become more important to personal computer users, organizations, and the military. With the advent of the internet, security became a major concern. The internet structure itself allowed for many security threats to occur. Network security is becoming of great importance because of intellectual property that can be easily acquired through the internet. There are different kinds of attack that can be when sent across the network. By knowing the attack methods, allows for the appropriate security to emerge. Many businesses secure themselves from the internet by means of firewalls and encryption mechanisms. There is a large amount of personal, commercial, military, and government information on networking infrastructures worldwide and all of these required different security mechanisms. In this paper, we are trying to study most different kinds of attacks along with various different kinds of security mechanism that can be applied according to the need and architecture of the network.

Keywords: Network Security, attacks, hackers, Cloud-environment security, zero-trust model (ZTM), Trend Micro internet security.

#### I. INTRODUCTION

Network Security management is different for all kinds of situations and is necessary as the growing use of internet. A home or small office may only require basic security while large businesses may require high-maintenance and advanced software and hardware to prevent malicious attacks from hacking and spamming [1]. New Threats Demand New Strategies as the network is the door to your organization for both legitimate users and

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