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Intrusion detection and prevention in Cloud using Edge intelligence

N.G.S.Parameswaran[1,*)] and Dr.M.Sumathi[2)]
[1)]Department of Computer Applications, VHNSN College, Virudhunagar, Tamilnadu, India
[2)]Department of Computer Science, Sri Meenakshi Govt. Arts College for Women, Madurai, Tamilnadu, India

Abstract. Cloud computing is a booming technology used by IT organizations since it provides all types of services based on pay per use model. Security and privacy is the major concern of clouds. IoT devices are resource constrained devices, and are unable of securing and defending themselves, and can be fluently negotiated and compromised. Thus, it is important to take up proper schemes for authentication and control access to assure the overall security for IoT devices, their communications, and their data. Accessing the IoT devices using cloud is increasing. Also the authentication scheme must be reliable, scalable, and secure against known attacks and threats. Cloud and IoT need to follow stringent security mechanisms to detect its anomalies. Intrusion detection system (IDS) is used to analyse the intruder attack on the cloud. We emphasise the use of anomaly based intrusion detection techniques to prevent the intruder attack. Edge intelligence is the combination of AI and Edge Computing; it enables deployment of machine learning algorithms to the edge devices where the data is generated. It has the potential of providing artificial intelligence to any person and every organization at any place.

Keywords. IoT, Authentication, Cloud, Security, IDS, Edge Intelligence, Edge Computing

1. Introduction

Authentication is the process of certifying an identity by which a set of given credentials are checked against stored data in a database or authentication server [1]. The various threats to cloud are by attacks such as Denial of Service, Distributed Denial of Service, network sniffing, cross-site scripting, IP spoofing, man-in-the-middle attack

* Corresponding author: parameswar2003@gmail.com
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