Patent Search

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Abstract:

Application of Multi Objective Differential Evolution Mechanism For Cyber Security Policy Optimization Abstract This paper addresses the critical challenge of optimizi cybersecurity policies to safeguard digital assets effectively. The central problem revolves around developing a robust and adaptable mechanism for simultaneously c multiple cybersecurity policy objectives, such as intrusion detection accuracy, resource utilization, and compliance with regulations. To tackle this problem, the paper Multi-Objective Differential Evolution (MO-DE) approach, a bio-inspired optimization technique known for its ability to handle multi-objective optimization problems. methodology involves designing a customized MO-DE algorithm tailored specifically for cybersecurity policy optimization. This algorithm incorporates objectives, cons fitness functions, and parameters relevant to the cybersecurity context. Key findings of the study reveal the efficacy of the MO-DE mechanism in optimizing complex a dimensional cybersecurity policies. The approach demonstrates the capability to strike a balance between competing objectives, such as enhancing security while mi resource overhead. Through extensive experimentation and case studies, the paper showcases improved policy configurations that achieve higher security effectiven operational efficiency compared to traditional optimization techniques. The implications of this research are significant for the field of cybersecurity. By harnessing th MO-DE, organizations can enhance their cybersecurity posture by crafting policies that align with their unique security goals and resource constraints. Furthermore, t highlights the potential for applying MO-DE in other cybersecurity domains, such as intrusion detection system tuning, access control policy optimization, and vulnera management. Overall, the study underscores the importance of leveraging advanced optimization techniques to address the ever-evolving challenges in the cybersec landscape and achieve more resilient and adaptable security strategies.

Complete Specification

Description:Keywords-Multi-Objective, Differential Evolution, Cyber Security, Policy, Mutation

1. Introduction

Cybersecurity has become an indispensable concern in our increasingly digital world. As organizations and individuals rely more on digital assets, the need to prote assets from cyber threats is paramount. Cybersecurity policy optimization is a critical component of safeguarding digital assets. These policies dictate the rules and procedures that govern an organization's or individual's cybersecurity measures. By optimizing these policies, we can enhance the protection of digital assets, reduc vulnerabilities, and mitigate the impact of potential cyber-attacks.

2. The Research Problem:

The research problem in cybersecurity policy optimization lies in the complexity of finding the most effective policies. Cyber threats are dynamic, and attackers cont adapt their tactics. Therefore, cybersecurity policies must be adaptive and capable of addressing a range of evolving threats. Additionally, there is often a trade-off b security and operational efficiency – strict policies might provide robust security but hinder usability, while lax policies may make assets more accessible but increas vulnerability.

Motivation for Using Multi-Objective Differential Evolution (MO-DE):

Multi-Objective Differential Evolution (MO-DE) is a powerful optimization technique that can address the challenges inherent in cybersecurity policy optimization. He

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