Chapter 11
Enhancing E-Commerce Data Privacy in India's Rapidly Evolving Cybersecurity Landscape Through AI-Driven Intrusion Detection Systems

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ABSTRACT

The rise of sophisticated cyber threats poses significant challenges to the safety and integrity of goods and services in today's interconnected digital environment. This paper introduces "Secure by Intelligence," a paradigm that utilizes Artificial Intelligence (AI) to enhance security and mitigate risks. India's rapidly growing

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e-commerce sector is transforming business practices, with AI playing a crucial role in its technological advancements. As e-commerce applications increase in complexity, maintaining usability becomes more challenging. This paper proposes integrating AI with Intrusion Detection Systems (IDS) to ensure data safety in e-commerce. By employing advanced machine learning techniques like deep learning and anomaly detection, AI-driven IDS can strengthen the resilience of e-commerce systems against cyber threats. The study examines the architecture and advantages of these systems while addressing implementation challenges. Ultimately, integrating AI-driven IDS will enhance consumer trust, protect sensitive data, and ensure the reliability of e-commerce ecosystems.

1. INTRODUCTION

E-commerce refers to the purchase and sale of commodities via the Internet. In addition to financial transactions, timely movement of commodities is required. The necessity for a supply chain now arises. A vital component of e-commerce is the supply chain, which needs to run smoothly, quickly, and securely. E-commerce is a logistic industry weapon that is extremely competitive (Rangaraju & Dharmalingam 2024). These days, e-commerce companies are vying for a larger portion of the retail sector by creating and recognizing original distribution and sales tactics. An effective supply chain can achieve increased cash usage. Regardless of a business's size—big or small, physical or virtual—its inventory, a dynamic number, is among its most important resources. Prompt trading of products is necessary to mitigate the risk of damage or spoilage that accompanies a large inventory (Dhinakaran et. al., 2024). Inventory management is a critical task that affects both the financial condition of the balance sheet and the effectiveness of the supply chain. EveryEvery firm should maintain optimal inventory to eliminate under-inventory without compromising financial results. By carefully analyzing both external and internal variables, improved planning can elevate inventory conditions. Story planners collaborate with the finance, manufacturing, and procurement divisions while regularly reviewing and monitoring the inventory. E-commerce businesses heavily rely on logistics (Murugesan et. al., 2023).

Electronic commerce enables businesses to combine internal and external business activities through information and communication technology. Businesses use the Internet, extranets, and intranets to carry out such commercial operations. Businesses can cut expenses, expand their market reach, and forge deeper partnerships using e-commerce. However, there are now additional dangers and issues associated with using the Internet as the fundamental core network (Awad et al., 2024). Industry analysts frequently point to trust and security as the primary obsta-