


Chapter 7

Effects of Cloud Computing and Cybersecurity in the Digital Business Development: Issues and Trends

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ABSTRACT

In today's world, digital businesses increasingly adopt cloud computing, and cybersecurity in the day-to-operations. Cloud computing helps the businesses to save money on equipment, training and infrastructure. The cyber security plays a crucial role in protecting data, systems and networks from cyber threats and unauthorized access. This research paper explores the complex relationship between cloud computing and cybersecurity. It probes the vulnerabilities inherent in shared resources, multi-tenancy, and external management, which expose businesses to risks like data breaches and DDoS attacks. Highlighting the role of AI and ML in real-time threat detection and response, the study also emphasizes encryption. This research adopts a qualitative research methodology whereby explorative and thematic analysis has been carried out. The findings underscore the need for adaptive, robust security strategies to protect data, ensure continuity, and maintain trust, suggesting future exploration of AI advancements and quantum computing in enhancing cloud security.

1. INTRODUCTION

Cloud computing has received growing attention from both research and development in recent years. Many organisations outsource their infrastructure and applications to on-demand services to save costs and leverage computational resources (Parast et al.2022). These cloud platforms use the latest networking technologies and service configurations to boost both static security testing and routine network

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protection activities on the company's computer networks. This would assist them in protecting their mobile virtual networks from attackers. It is desirable to ensure that the regular knowledge that comes from security operates quickly and narrowly in a corporate network.

The modern world is greatly dependent on computing, so it is indeed a Wi-Fi-based environment that appears to be dynamic and complex. Around 70% of businesses use cloud technologies to boost their performance and flexibility. The world's digital technology has had a very significant effect (Sharma, Rahman, and Rena,2024). Others attempt not only to examine today's world but also to try to prevent this heinous crime as well as provide online training. All countries in the technological realm have in place certain regulations and laws that must be followed, including cyber law and cyber protection. Everyone's work is dedicated to the Community Law that prevents cyber technologies. There are many types of laws, such as prohibitions, regulations, contracts, and treaties that aim to explore cybersecurity (Rahman, Lal, and Rena,2024). The foregoing ties together cloud computing with security issues. Additionally, the performance of algorithms currently used in various domain architectures and schematics from a business point of view is examined.

Cloud computing is the practice of using a network of remote servers hosted on the internet to store, manage, and process data. Computational tasks and storage resources can be offered as a cloud service system. As of today, many individuals, businesses, and organisations utilise cloud computing to enjoy a cloud computing service that is provided to them based on a fee per usage or fee-for-service method (Marinescu, 2022). It can be stated that the role of cloud computing evolves from early development up to the current digital business environments.

Digital business refers to a business system conducted by organisations and individuals by utilising technology and electronic devices. The use of technology is widely used in the entire organisational operation, and most of the transaction process is done digitally to a large extent (Rahman, Lal, and Rena,2024). The digital business system refers to the use of electronic data systems to store business data and the capability to exchange various forms of data. One of the technologies that has the potential to be incorporated effectively in a digital business environment is cloud computing (Pallathadka et al.2022). It is an internet-based technology that uses computer and storage resources on demand. The use of cloud is rapidly growing among university researchers. It also enables business users and could have a significant impact on access to high technology for general users.

In cloud computing, it is not enough only to develop new business ideas to provide new services that improve the fashion, demands, and facilities of life through digital and Internet services. In addition to this, the foundation and the basic factors are also the provision of high-quality security to our customers. Security is the end and must be addressed in order to maintain the cybersecurity level in digital business (Sharma, Rahman, and Rena,2024; Rahman, Lal, and Rena,2024). Hackers in general always hunt for the best targets, victims, and weaknesses that they can exploit in a cyber-attack. Cloud services have become one of the easy targets for attackers because they offer a lot of valuable information that can be accessed anywhere using the Internet (Parast et al.2022). According to its configuration, security may be designed jointly to protect against the threat of an internal attacker and/or protect external attackers. Since both configurations must handle all location and service-related forms, the ability of a security system to provide a high level of security is questioned.

The current high dependence on cloud computing services in various fields dictates the necessity of placing cloud computing among the sections that should be given the utmost attention in developing secure computing solutions. Therefore, one of its main objectives is to examine the key security vulnerabilities of cloud computing. Cloud computing is characterised by its five important points, including:

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