


Chapter 1

A Comprehensive Introduction to Cloud Computing Revolution

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ABSTRACT

Cloud computing can be considered as a revolution of how commercial enterprises obtain and use computational services. In a narrow sense, cloud computing means the rent of services over the Internet with its characteristics such as storage, computing, and applications. An organization can host an application in minutes and run it without having to invest a week or a month in procuring the necessary hardware and setting it up with the help of cloud. This is made possible by the flexibility brought about by pay as you go, eliminating cases where firms incur bills in resources they did not or will not require. Privacy is an essential aspect within the cloud computing that is still emerging. This is done through nurturance of proper encryption, security check and risk analysis, creation of organizational standards and compliance to other standards. These risks should be well understood by all organizations to make sure that measures are employed to make cloud security not

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to hinder the adoption of this technology that holds great promises for the growth of their business processes.

1. INTRODUCTION TO CLOUD COMPUTING

The integration of Cloud Computing as the foundation of the digital delivery platform for Internet of Things (IoT) as the new physical distribution network of service delivery can best be described as a revolution in healthcare service delivery and management. Community Health Systems (CHS) deploys Cloud IoT to protect from a wide range of connected IoT devices including wearables, sensors and various types of medical equipment. It also uses the enhanced capabilities of Cloud platforms for storing, processing and analyzing collected information. This integration helps in the application of real-time health monitoring apart from the remote diagnostics to offer the clients a distinctive service.

In the past, several methods have limited the availability and use of clinical information in health facilities such as; the compartmentalized arrangement of information, lack of interaction and sharing as well as length and formalism in accessing information (Arulkumar et al., 2024). IoT has given us the ability to capture data in clinical settings persistently and independently through monitoring the signs, movements and surrounding environment of a particular patient. These devices generate a huge amount of information that is transmitted openly to the cloud station. Advanced paradigms and high-level analytical techniques in the cloud comprising of the use of Artificial Intelligence (AI) and machine Learning (ML) are used in generating insights. Apart from strengthening sound clinical decisions, this capability also supports the prevention of health-focused treatments leading to a low incidence of acute events and hospitalization. Moreover, cloud IoT healthcare systems are intentionally developed to address some of the biggest challenges that today's healthcare is faced with; these are scale, data and costs. IoT application necessitates almost indefinite storage and cloud computation facilities to analyze data generated by IoT devices (Ramya et al., 2024). They also provide better security measures for the protection of personal health information according to the rules and regulations of Health Insurance Portability and Accountability Act (HIPAA) and General Data Protection Regulation (GDPR). In corporate strategy, the option of using 'pay as you go' that is associated with cloud services helps moderate the cost since the kinds of resources provided can be increased or decreased according to the demand. Especially in light of the further development of the structure of the health care system as the connected, patient-oriented model, the role and significance of the potential of cloud IoT systems cannot be overestimated when it

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