

# Chapter 3

## An Intelligent Data Retrieving Technique and Safety Measures for Sustainable Cloud Computing

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### ABSTRACT

*Data refers to raw facts and figures. After processing data, the information is created. Information like facts or statistics that can be recorded, stored, and analysed can be in various forms such as text, numbers, images, audio, or video. The amount of data generated every day in the data-driven world of today makes it nearly difficult to keep it all locally. Cloud services are being used by so many people and businesses to store these massive and hefty volumes of data on cloud servers. Additionally, as the need for cloud computing grows, so does the need for data recovery methods and services. The ability to recover data and information from the backup server when the primary server is down is the primary goal of recovery services and technologies. A secondary server to hold backups for the primary cloud server will be more expensive to add than the primary server itself, which is already quite expensive and time-consuming to build. The goal of this chapter is to provide realistic, cost-effective solutions to this urgent problem.*

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## **1. INTRODUCTION**

Data refers to any information, facts, or statistics that can be recorded, stored, and analysed. It can be in various forms such as text, numbers, images, audio, or video. In the context of computing and technology, data often refers to digital information that is stored and processed by computer systems. This data can be structured or unstructured, and can be generated from a variety of sources such as sensors, software applications, or user input. Data is an essential component of many fields such as business, science, medicine, and engineering. It can be used to make informed decisions, discover patterns or trends, and gain insights into various phenomena. However, data alone is not useful until it is processed, analysed, and interpreted.

Electronic data production has reached an unprecedented scale, leading to a significant challenge for companies to store it. The traditional solution of using hard disk drives (HDDs) with terabytes of storage capacity is no longer sufficient to meet the data storage demands of IT companies. Even constructing an entire storage facility may not solve the problem, as the volume of data generated by companies continues to grow at an exponential rate.

To address this challenge, cloud computing was introduced. This innovative technology enables users to store their data on a remote cloud server rather than on their personal computers, freeing up valuable physical storage space. Accessing the data is as easy as logging into the cloud account, and cloud services are often more cost-effective than building a large-scale storage facility.

The widespread adoption of cloud computing has not been limited to businesses alone, as individuals also seek to leverage its benefits for data storage. However, this increased demand has also led to the risk of data loss. To mitigate this risk, cloud-based data recovery and backup procedures have been developed, providing additional layers of protection to ensure that valuable data is not lost due to unforeseen events such as hardware failure, cyber-attacks, or human error.

One significant advantage of cloud computing is its scalability. Businesses and organizations can easily scale their storage and computing resources up or down based on their changing needs, without having to invest in new hardware or infrastructure. This is especially useful for businesses with fluctuating demand, such as those in the retail or hospitality industry, where demand can vary based on seasonality or market trends. With cloud computing, businesses can quickly and easily adjust their storage and computing capacity, allowing them to be more agile and responsive to changing market conditions.

Another benefit of cloud computing is its accessibility. Cloud-based storage and computing resources can be accessed from anywhere with an internet connection, allowing businesses and individuals to work remotely or collaborate with others in different locations. This has become increasingly important in the wake of the

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