CLOUD STORAGE AND PRIVACY AWARENESS ISSUES: A REVIEW OF EXISTING MEASURES

Author- Komal Srivastava, M.Tech Scholar, Department of CSE, RIET Jaipur
Prof. (Dr.) Saroj Hiranwal, Professor, Department of CSE, RIET Jaipur

Abstract
In the recent years, the usage of cloud storage has grown immensely. Also, cloud storage helps individuals, students, and organisations in storing their data. Similarly, cloud storage store data in large amount and in huge number. However, there are many advantages and disadvantages of using cloud storage in saving data. The adoption of cloud services by individuals and organisations in protecting their data from any misuse is common. Moreover, privacy issues have been arising even after using cloud service and liberty is infringed of individuals. However, the attackers and hackers have identified different ways to hijack personal data of individuals and makes misuse of it. Therefore, cloud service providers should set a standard to protect personal data of individuals. To analyse the present study, a detailed view of the research structure and is followed by a conclusion based on the research methods. Additionally, the study focuses on approaches, research choice, time horizon, various sources of study, and methods of data analysation. Therefore, secondary data is sourced from the available sites and qualitative research is approached. Different ways and methods to prevent data of individuals using cloud services should be presented. Also, there must be transparency in issues related to personal data of individuals using cloud services. Therefore, the law makers and cloud providers should formulate legal measures to individuals in protecting their personal data when being infringed. Therefore, from the secondary sources available it has been determined that the privacy issues of cloud storage have increased enormously. Also, there should be measures to protect data and from being infringed.

Keywords: Cloud storage, privacy awareness, data analysis.

1. Introduction
This chapter focuses on understanding the background of this research. It focuses on understanding the meaning of cloud services and their privacy awareness issues. The chapter further covers the privacy awareness issues of cloud services. It also includes how individuals and organisations are suffering from leakages.
1.1. Background
In the present era of technology, there are many cloud storage services are available to aid people in managing their data storage and securing it from misuse [1]. The cloud services such as Google Drive, Dropbox, and iCloud help people in preventing their data [2]. Moreover, cloud storage has minimised the use of physical devices like external hard disks and pen drives [3]. Also, the method of storing data in cloud storage has become a trend in the contemporary world.
1.2. Adoption of cloud services
In furtherance, many organisations have started adopting cloud services to store their data and prevent any leakages [4]. Similarly, not only in organisations cloud services are getting popularity among students also. In the preliminary study, it has been found that 51% of students are using cloud storage to protect their data from any kind of misconfiguration [5]. As the infrastructure of

the cloud is designed in a way that it can be used easily. Also, the existing infrastructure of cloud services allows access to transfer data to authorised parties only.

Figure 1: Cloud Services

However, many individuals and organisations are not familiar with the security of cloud services and often suffer multi-cloud deployments. Also, it has become easy for many attackers and hackers to access data unauthorizedly and expose it to the world. Usually, attackers hack sensitive data from large organisations and misconfigure it worldwide.

1.3.Privacy awareness issues

There are different ways in which data is misused by hackers. It includes Insecure Interfaces, lack of visibility, hijacking of accounts, malicious insiders, external sharing of data, denial of service attacks, and cyberattacks [6].
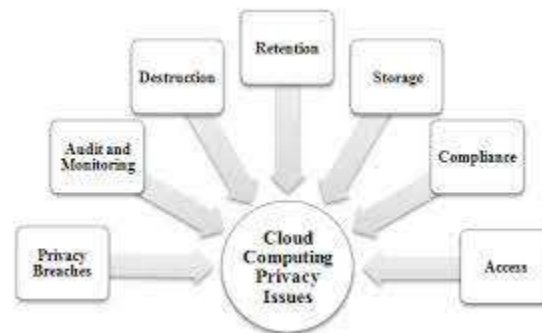

Figure 2: Cloud Privacy Issues

Attackers are formulating different ways to hijack the personal data of individuals and organisations and then try to threaten them. Though, there are several advantages provided by cloud services to protect data [3]. Also, the cloud-based data infrastructure is different from traditional security strategies and tools [4]. Similarly, cloud-based data infrastructure is different from in-remise data centre and are not always able to secure its data effectively. However, the basic form of liberty is privacy and individuals must be aware to keep their privacy secure from any leakages or misuse [5].

2. Literature review
2.1.Introduction

The previous chapter depicted the introduction and background of the subject matter. Also, it included the adoption of cloud services by individuals and organisations in protecting their data

from any misuse. Moreover, it included privacy issues and liberty infringed on individuals using cloud services. The current chapter presents a detailed review that critically analyzes the meaning of cloud services and the difference between cloud services and cloud computing. Also, the existing chapter gives a detailed discussion on awareness and privacy issues on cloud services. Moreover, the review is undertaken using the data presented in previously published periodicals, journals, reports, scholarly books, websites, and conference proceedings.

2.2. Cloud storage and computing

The cloud computing model that facilitates storing files and data on the internet is cloud storage [7]. Also, cloud storage provides access to either private network connections or public internet. Moreover, there is a difference between cloud storage and cloud computing. Cloud storage is the storage of data and its capacity available over the cloud whereas, cloud computing is processing power which is accessible over the cloud. Also, different types of cloud storage are Email, Dropbox, and Google Drive and are available to individuals and organisations to secure their storage [2]. However, cloud computing is used in investing in in-house infrastructure and provides access to processing power without worrying about security. However, both cloud storage and cloud computing have different objectives based on the requirements of the user [8]. Therefore, for storing data in large amounts from anywhere in the world cloud storage is required and for processing power on computer-based operations cloud computing is used.

2.3. Awareness and Privacy

Even after the advanced technologies available in the present century, individuals do not find it safe to use cloud storage for storing their data [9]. Also, there have many incidents that occurred that keep away users from using cloud computing systems regarding the privacy of their data. Similarly, incidents like phishing attacks, the flaw of accidentally sharing user documents, leakage of customer lists, etc results in privacy issues [10]. However, individuals and organisations are getting aware of different frauds occurring even after using cloud services in storing their data. However, many cloud systems have begun their security policies. Though it is hard for cloud service users to completely trust these newly introduced policies [11]. Therefore, it has difficult for users to trust any medium for storing their data privately and securely.

2.4. Cloud security measures and concerns

Many individuals and organisations using cloud security to secure their data are concerned about the protection of their data. As cloud-based environments have made it easy to share data that is stored within the cloud services. Moreover, 69% of organisations have suffered data leakage even after storing their data in cloud services [12]. However, there are various legal compliance available to cloud security users if they suffer that their confidential information has been leaked or misused by any attacker or hacker. Therefore, individuals and organisations using cloud services must be aware of such regulatory compliances to take action against any cybercrime done with them [13].

2.5. Literature gap

From the above-mentioned literature, there are various gaps identified in the present study. It can be stated that individuals and organisations are unaware of geographical data storage privacy issues that occur in cloud services. Moreover, individuals and organisations are facing transparency issues in computing cloud services. Similarly, individuals and organisations are unaware of the basic cyber laws and human rights laws that can be taken and faces issues when any contingency

of infringement in privacy occurs. Therefore, individuals must be aware of different types of privacy infringement and their rights to use cloud services for storing their data.

This chapter has shown useful insights into the existing literature on the subject matter. It has been shown that using cloud services is not that safe to protect data. Furthermore, the review also gave insights into different privacy issues that can occur on using cloud services. Consequently, this chapter has depicted the present literature gap in analysing privacy issues in using cloud services for storing data. The following chapter presents a detailed description of the research methodology chosen by the researcher for analysing and collecting data for the current study.

3. Methods

The earlier chapter gave a broad and systematic review of the present literature on cloud services and their privacy issues. In furtherance, the present chapter gives a detailed view of the research structure and is followed by a conclusion based on the research methods. Additionally, the present chapter focuses on approaches, research choice, time horizon, various sources of study, and methods of data analysation. Thus, the chapter ends with a conclusion to the methodological approach of the study.

3.1. Research Design

A conceptual framework or technique explaining the various factors to conduct a research study is the research design [14]. Similarly, designs acknowledge researchers to make their research method stronger and more appropriate for the subject matter. Moreover, the research design for the existing study will be based on the research onion framework which includes research philosophy, research approach, research strategy, research choice, and time horizon. As the onion framework of research helps in setting up the successful completion of the study.

3.2. Research Philosophy

A bunch of facts and beliefs assumed regarding the gathering, analysing, and interpretation of data is research philosophy [15]. It records both what is true and what ought to be true as it is based on the nature, knowledge, and assumption of the study. There are four types of research philosophies namely interpretivism research philosophy, positivist research philosophy, realistic research philosophy, and pragmatic research philosophy [16]. In the existing research, the interpretivism research philosophy has been used as it is used to interweave and define contemporary research for collecting key information related to cloud services and their privacy issues.

3.3. Research Approach

The procedure selected by the researcher to gather, examine and interpret data is the research approach [17]. Also, two types of research approaches are the inductive research approach and the deductive research approach. Inductive reasoning desires in developing a theory whereas, deductive theory desires in testing the existing theory. Moreover, in inductive theory, the generalised conclusion is drawn from a specific observation and in deductive theory, the examination of the hypothesis from the existing theory is taken into consideration. Similarly, for the conduction of existing research, an inductive research approach has been taken into consideration to determine cloud services and their related privacy issues.

3.4. Research Method

The techniques, strategies, and processes applied in gathering data or confirming for analysis to identify new information for a better understanding of the topic is the research method [18]. The strategies applied in the research method help in finding the solutions to research and achieving

the objectives of the study. In the present study, the strategy undertaken to understand the concept of cloud services and its privacy issues is qualitative. Also, the existing study will focus on secondary research to analyse the subject matter.

3.5.Research Choice
The correct choice of research methodology in deciding the success and comprehensive quality of the research study is research choice [19]. Similarly, the approach can be either qualitative or quantitative. quantitative. In furtherance, the numerical data is a quantitative study whereas non-numeric data like pictures, words, movies, etc is a qualitative study. Furthermore, a mixed approach is also applied according to the requirement. However, to fulfil the objective of the existing study qualitative research has been taken into consideration.

3.6.Time Horizon
The time horizon is a layer that defines the time frame of the research. Also, there are two types of time horizons namely, cross-sectional and longitudinal [20]. In the present study, a cross-sectional time horizon study has been applied. As it has been employed due to time limitations.

3.7. Sources of data
Data sources are used as a process for collecting data from different sources to resolve the research test, challenge, and hypothesis. Also, two types of data are used in the conduction of the research which is primary data and secondary data [21]. The primary source of data is the first-hand information which is collected by the researcher whereas, Secondary source data is second-hand information collected from published research. However, the secondary data source has been taken into consideration in the present study. Therefore, the data has been sourced from a range of articles, websites and already-established research studies.

4. Findings
The findings of the present study which has been carried out are that individuals are facing challenges in using cloud services for data storage. Though, there are many advantages of using cloud storage like access to data from anywhere, lower cost, and scalability. But the biggest disadvantage of using cloud storage is its privacy issues. Also, individuals and organisations using cloud storage to secure there are data are not aware of various privacy issues it. Also, people are facing transparency issues in using cloud services. Similarly, cyber attackers and hackers have learned various methods of doing crimes like the leakage of personal data. Therefore, it has become necessary for cloud service providers to formulate strict norms and laws to protect the private data of cloud users. Additionally, some strict standards must be set by the cloud providers to let customer access and judge different cloud providers.

5. Conclusion
Therefore, it can be concluded that data privacy is the ability to protect personal data from being infringed and misused. Also, data privacy must be considered an important factor by both cloud providers and users. Additionally, users must increase their awareness regarding privacy issues in the cloud and try to protect it. Similarly, it can be stated that the personal data of individuals is at risk in cloud storage and it is a challenge to protect data privacy in the cloud.

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