

Chapter 10

Dynamic Evaluation Service for Safe Cloud Retention With Protection of Privacy and Reduction of Cyber Security Attacks


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ABSTRACT

The cutting-edge technology that is growing in popularity worldwide is cloud computing. Keeping the data in the cloud via cloud storage because it can be accessed from anywhere at any time. There exist many different privacy-preserving data auditing methods, each of which has benefits and drawbacks of its own. As a result it's essential to create an auditing approach that does away with all of the drawbacks of existing strategies. The cloud, the TPA, and the data owner server comprise its three key components. The owner of the data performs static data operations like introducing, altering, and deleting data as well as dynamic data operations like dividing a file, encoding it in chunks, establishing a each block's hash value, combining them, and signing it. Data validation can either be carried out automatically or at the user's request. The setting up of an audit service with elements like privacy protection, open auditing, data integrity, and privacy is the main objective.

INTRODUCTION

Anyone may utilize and access computing resources at any time thanks to the cloud computing computer. The idea's feasibility it is less expensive, and operating and interacting with it is

DOI: 10.4018/979-8-3693-3597-0.ch010

simpler. Global, instantaneous service network availability of a widespread adaptable computing resource pool is made possible by cloud computing. It involves little management work or service provider working together and may be added quickly. Customers can save time and money by embracing the cloud. A form of Internet-based computing known as “cloud computing” involves the distribution of an assortment of services, including servers, storage, and applications, to the PCs and other devices that are connected to the Internet of an organization. (Ryan, D et al., 2011). Although cloud computing is an important instrument for information technology (IT) applications, entities and individual users nevertheless encounter significant hurdles when keeping data there. The greatest barriers to data security acceptance are worries over compliance, privacy, trust, and legal stumbling blocks (F.Doelitzscher et al., 2012). As a result, important goals are defined (A. Srijanayas K et al., 2013). A potent tool for information technology (IT) applications is cloud computing; Individual users and companies must, however, overcome a number of vital difficulties when storing data in the cloud (Y. Zhu et al., 2013). The principal barriers to data security acceptance are worries concerning compliance, privacy, trust, and legal stumbling blocks. As a result, substantial objectives are established (C. Liu et al., 2014). GANs, or Generative Adversarial Networks, are a contemporary method for generative modeling in deep learning that frequently makes use of convolutional neural network patterns (M. G. Haricharan et al., 2023). Finding commonalities in input data on an individual basis is the aim of generative the modeling process, which allows the model to generate fresh data points that reasonably mirror the original dataset (C. Huang et al., 2016).

GANs address this problem in a novel way through approaching it as a supervised learning problem with two essential parts: the discriminator, which must discern between created and real cases, and the generator, which must learn to generate novel scenarios (P. Mell & T.Grance, 2010). These models battle with each other through adversarial training until the generator learns to produce realistic samples, thereby fooling the system for discrimination roughly fifty percent of the time (W. Shen et al., 2017).

Data security encompasses several aspects such as data location, availability, confidentiality, protection, and secure transmission (K. Yang et al., 2012). is the most important concern in the cloud. Threats, data loss, service interruptions, external hostile assaults, and multitenancy issues are all part of the cloud security tasks (Mozumder, M et al., 2023). The term “data integrity” in the context of cloud computing refers to the protection of data from tampering (V. Tejaswini et al., 2012). Data ought not to be lost or manipulated through an individual who fails to be authorized to do so. Cloud service providers are tasked via the accuracy and integrity of data (J. Yuan et al., 2015). Users who have amassed private or sensitive data on the cloud must also prioritize data privacy (C. Wang et al., 2013). Methods of access restriction and verification are employed to guarantee data privacy.

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