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Cloud Computing for Disaster Management

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Abstract: ***Cloud computing allows network access to a computing resources like servers, storage and applications. These shared resources can be increasingly use-full to the consumers on the basis of paying only for resources they use. Cloud provides the delivery of storage resources to the consumers over the Internet. Private cloud storage is to a particular organization and data security risks is more in cloud. Hence, private cloud storage is built by using the commodity machines within the organization and the important data is stored in it. When the use of cloud increases the problems also increase like performance & storage demand, privacy & security, data integrity. Increase in storage leads to extend the cloud storage with more storage nodes. During such expansion, the storage on the cloud needs to be managed In order to maintain the load across storage nodes, the data need to be move across the storage nodes. This data that is moved from one location to other, consumes more network bandwidth. The key idea behind this is to develop a dynamic load balancing algorithm based on de-duplication to balance the load across the storage nodes during the Extension of private cloud storage. For maintaining privacy, security & data integrity we will use AES algorithm & SHA algorithm. SHA algorithm also used to avoid duplication.***
Keywords: ***Cloud computing, cloud solution, reliability, load balancing, encryption, and secure de-duplication, data integrity.***

I. INTRODUCTION

Recently, cloud computing is very essential in the Information Technology. Cloud computing allow access to computing resources like application, storage, servers etc. By using internet cloud provide storage service to users. There is chances of cloud disaster like performance, privacy & security, data management. To improve performance, load balancing is an important task for doing operations on cloud and de-duplication also. As cloud computing has been growing and many customers all over the world are demanding more services for better results, so load balancing is important. Load balancing convince efficient resource use to customers on their demand and improve the overall performance of cloud. Every increasing volume of similar files may be a vital challenge so we can use de-duplication mechanism for Reducing/Removing the duplicate data. The key idea behind this project is to develop a dynamic load balancing algorithm based on de-duplication to balance the load across the storage nodes during the extension of private cloud storage.

II. PROBLEM STATEMENT

We are developing the system to reduce a load on the cloud base servers and neglect data Duplication by using some algorithms. This system is basically implemented for Hash Code detection techniques which is used for neglecting multiple storage of the same files on the Cloud Server. For the load balancing techniques system Divide the file into three parts and stored into the three different location. The access is only provided to the valid person's or authorized persons only who has login authority with the valid user id which is given by the admin to the user.

III. GOALS AND OBJECTIVES

A. The system is to removing a load on cloud base servers using the load balancing methodologies and algorithm.
B. Hash Code detection techniques which is avoiding the multiple storage of the same files on the Cloud Server.
C. For the load balancing techniques file is splits into three parts and stored into the three different location and the access is given only for the authorized persons only who has login credentials with the valid user key (private key) which is given by the admin.

IV. ALGORITHM/METHODOLOGIES DETAILS

A. Advanced Encryption Standard (AES)

AES is the kind of algorithm to calculate and utilize to encode the information AES includes three square AES-128, AES-192 and AES-256.the key size used for an AES algorithm encrypted cipher text specifies the number of transformation rounds that convert the input into final output the input given to algorithm is nothing but plain text and encrypted text is called cipher text each round consist a fix block size key The number of rounds are as follows: 10 rounds for 128-bit keys12 rounds for 192-bit keys14 rounds for 256-bit keys Each figure encodes and unscrambles information in squares of 128 bits by utilizing encrypted keys of 128 . 192 and

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256 bits, separately Symmetric key is used in AES encrypted algorithm to utilize a similar key for encryption and decryption, so both the sender and the recipient must know and utilize a similar encrypted key.
All key lengths are regarded adequate to secure grouped data up to the "Mystery" level with "Top Secret" data requiring either 192 or 256 bit key lengths. There are 10 rounds for 128 bit keys 12 rounds for 192 bit keys, and 14 rounds for 256 bit keys (a round contain steps that include substitution, transposition and mixing of the input plain text and transform it into the final output of cipher text)

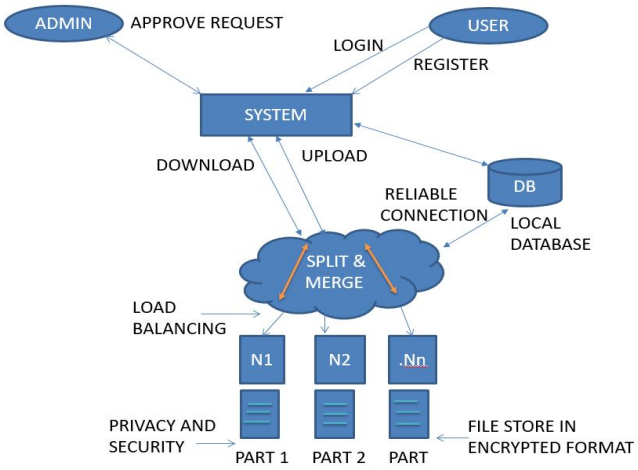
B. Secure Hash Algorithm (SHA)

SHA algorithm creates a hash code based on input text and it has a number of hash function. Hash function (the yield from execution of the calculation) to a authorized and expected hash approval, an individual can decide the information securely. For instance, figuring the hash of a downloaded document and contrasting the outcome with a recently distributed hash result can demonstrate whether the download has been adjusted or altered. A key part of cryptographic hash capacities is their impact obstruction: no one ought to have the capacity to and two diverse info esteems that outcome in a similar hash yield.

V. MOTIVATION OF THE PROJECT

Main motivation of the system is to remove a load from cloud base servers and avoiding data Duplications using the some methodologies and algorithm. This system is basically perform on Hash Code detection techniques which is used for avoiding multiple storage of the files from Cloud Server.
For the load balancing techniques system the file is split into three parts and stored into the three different location of the system. The access is only for authorized persons only who has login credentials with the valid user key which is given by the admin.
This System has a functionality to ask details of the customer to login and send the username, password and private key to the user with the help of the admin. Those have a login credentials as well as private key for the login who can easily perform upload, delete, and download operations.
Data security and load balancing will be manage, Using the Advanced Encryption standards (AES) and Secure Hash Code (SHA) algorithm .The Hash Code is created according to the file data and stored into database if the code is same then Duplicate file message will be arrive otherwise the code is unique then file split into three different chunk and stored it into three Different location.
If the user try to Delete or Download the file without Private Key and its login credential it gets fails. if The Login credential gets match then the all of three chunks gets merged into a single file and Delete/Download Operations performed this makes the faster and more secure.

VI. ARCHITECTURAL DESIGN



VII. CONCLUSION

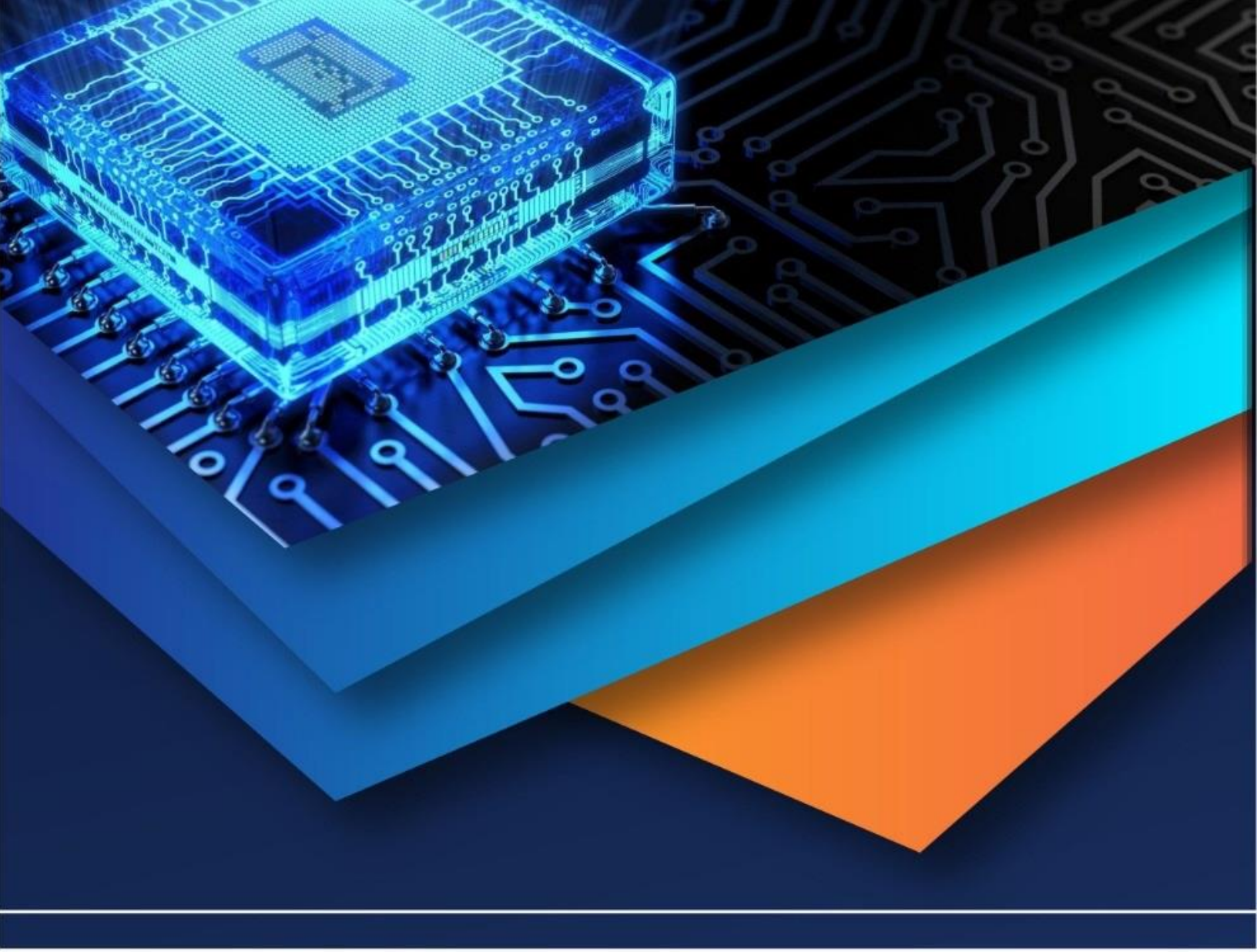
To avoid cloud disaster such as problems in connection, performance, privacy & security, data management we are implementing this framework to overcome this problems.

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