Implementation of cloud mirroring technique for e-commerce data

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Abstract: Cloud computing is a new model of computing that is bringing substantial benefits to consumers, businesses and administrations which is creating new risks and challenges. This study provides overview on cloud computing and how it relates to consumer protection and the digital single market goals. It determines that in order to get hold of the reimbursements of cloud computing, precedence schedules for policymakers are addressing regulation-related, improving gaps, improving terms and conditions for users, tackling stakeholder safekeeping concerns, inspiring the public sector cloud, and stimulating advance research and development in cloud computing. Mirroring algorithm will be used which will safe-guard the data from being crashed. This will also show how cloud will be safe and data cloud be stored by the e-commerce users. This paper provides a new method of implementation of cloud mirroring technique for e-commerce data.

Keywords: Cloud, cloud computing, cloud mirroring.

I. INTRODUCTION

Cloud Computing delivers us a revenue through which we can access the solicitations as utilities, over the Internet. It permits us to build, organize, and modify applications online. The term cloud which refers to network or internet; which is present at remote locations we can say it in other words. Services provided by the cloud over network; it can be public or private network i.e. WAN, LAN or VPN. Cloud Computing refers to deploying, constituting, and retrieving the applications online which will offer online data storage, infrastructure and application for its storage and usage too. Now the process has changes, we need not have to install any software on our local system and in this way cloud computing overcome platform dependency issue. Therefore, the cloud computing is making applications of business collaborative. Certain services and models behind the scene make the working of cloud computing feasible and accessible to users.

Deployment models and Services models are the two models which helps the models in working of cloud computing. Deployment models define the type of access to cloud, it can be one of the four and they are public, private, hybrid, community. Public cloud allows easy access to system which is easily accessible to general public. It less secure as it is open e.g. e-mail. Second is private cloud which allows system and services accessible within an organization. It provides more security as it is a private. The group of organization uses community cloud. The hybrid cloud is combination of both public and private cloud. The activities which are critical are performed under private cloud while the non-critical ones are performed under public cloud. Service models are the reference models which are cloud computing based. Infrastructure as a Service (IaaS) is responsible for access to major assets such as physical machines, virtual machines, virtual storage, etc. Platform as a Service (PaaS) runs the runtime background for applications, development & deployment tools, etc. Software as a Service (SaaS) allows usage of software applications as a service to end users.

II. LITERATURE REVIEW

Literature review is the survey of existing information which is related to a current topic:
[1] Shilpi U. Vishwakarma et al, 2015 showed how cloud computing will be useful for the storage of the files and data records for the users on the cloud and by which it will be safe and the chances of files getting corrupted is also less and if it gets corrupted could be retrieved from the cloud as its backup would be present there. Data backup and recovery is possible by this technique.
[2] S Sankareswari et al, 2014 has used symmetric key algorithm for both encryption and decryption. To hide the users attribute SHA algorithm was used by the proposed scheme. The Pailier algorithm was used for access policy, files accessing and file restoring process and for hiding the access policy of the user by using query based algorithm. Decentralized access control technique with authentication which will provide user reversal and avoid from replay attacks was achieved. As there was limitation that cloud knows the access policy for the record stored in the cloud. To avoid it; it used access policy to hide it which will prevent it.
[3] Kruti Sharma et al, 2013 has worked on the SBA algorithm which is robust in helping the users to collect information from any remote location in the absence of network connectivity and recover the files in case of the file deletion or if any cloud gets destroyed due to any reason. The result showed that the security concept for back-up files stored at remote server, without using any of the existing encryption technique. This also showed that it will take minimum time to recovery process to complete.
[4] Eleni Palkopoulou et al, 2011 has done the deployment of the sharing homing architecture which could lead to significant CAPEX reduction reaching 49% when compared with the legacy dual homing. The paper mainly emphasized on the important issue of the effect of deploying in terms of the recovery time requirement architecture. Cost decreased was done when the utility of alternative for homing architecture was used.
[5] Sheheryar Malik et al, 2011 this paper showed that the cloud computing has increased and even increasing rapidly as lot of enterprises are shifting their computing from in-house to cloud infrastructure. The virtual cloud concept of rent out the rented resource has reduced the monetary cost of the cloud.

[6] P. S. Lokhande et al, 2013 showed how cloud computing evolution made the change in the existing technologies. Especially, the e-commerce industry, which mainly focuses on the online presences, made easy for them to focus on customer service need more scalable architecture. Other types of attacks are also possible so to have strong foundation of well-designed architecture.

[7] Abdelfatah A Tamimi et al, 2019 study showed that in today’s world electronic data are produced in large quantities which require data recovery services as well for the organizations work may experience the different type of disasters which resulted in the huge loss of data. This paper showed the different and unique technique to recover and backup of data. Three aspects were taken for consideration for the technique; they are cost control, data replication and security issue.

III. PROBLEM ANALYSIS
Storage of cloud is unstructured today which will neither show or defines clearly set of competences and even doesn’t have any distinct architecture for the storage purpose. There are prime users of cloud computing for file storage. In the cloud storage there are multiple servers. There are virtual servers for the data storage, but does it really exists or not.

IV. PROPOSED WORK
The proposed method is used to make the data safe from being crashed which will contain the data of the main server due to which loss occurs, by using this the e-commerce website we can safeguard the details and other such things of the clients / user/ customers. The proposed technique is broadly divided in two parts, they are uploading and downloading. In the first part, user data which contain different activity of the user can be uploaded on cloud may it be in the form of plain text or in the encrypted format or can say any other form.

Uploading Module:
The uploading part is all about the log of recent activity performed by the user in ‘Recent Activity Table (RAT)’ which will store the information or log of activity performed by the user.

Steps for uploading are:
1. The activity log gets uploaded on the cloud.
2. After activity log gets stored successfully, the information will also gets stored along with that of the user.

Downloading Module:
The aim of this proposed technique is to provide the data to user by recovering it which was lost or crashed from the main server.

Steps for downloading are:
1. User will request for the previous activity or whatever he/she accessed it.
2. The request send by the user will move to the retrieval algorithm where it will check whether it is present or not and will respond accordingly.

V. SYSTEM DESIGN

Technologies Used

1. PHP
   PHP is a server-side scripting language intended for web development and it can also be used as a general-purpose programming language. PHP is a language that is precisely designed for web programming with built-in combination with the most widespread open source database MySQL. PHP code could be embedded into HTML code, or it can also be used in combination with various web template systems, web current management system and web frameworks. PHP code is typically sort out by a PHP interpreter implemented as a module in the web server or as a Common Gateway Interface (CGI) executable.

2. MySQL
   MySQL is the popular database choice which can be used for systems and its central component widely use LAMP which is an open source software stack and the other one is ‘AMP’ stack. Free software open source project that require a full featured database management system often used MySQL. MySQL is a relational database management system, and ships with no GUI tools to administrator MySQL database for manage data contained with the databases. The official set of MySQL front-end tools, MySQL work bench is actively developed by Oracle, and is freely available for use.

3. Ajax
   The AJAX method makes Internet applications minor, quicker and extra user-friendly. AJAX is a technology, which breaks the standard of page refill and protects a percentage of bandwidth. It can lead and recover the data deprived of refilling the web page, significance, that gone are the days where for each data repossess, we needed to refill the whole web page.

4. JQuery
   JQuery is an open source JavaScript library that reduces to bare bones the interactions between an HTML/CSS document, or more specifically the Document Object Model (DOM), and JavaScript. Particularizing, JQuery simplifies HTML document negotiating and management, browser event handling, DOM animations, Ajax interactions, and cross-browser JavaScript development. It is incredibly popular, which is to say it has a large community of users and a healthy amount of contributors who participate as developers and evangelists. It normalizes the differences between web browsers so that you don’t have to. Its
repository of plugins is massive and has seen steady growth since jQuery’s release. It is friendly, which is to say it provides helpful ways to avoid conflicts with other JavaScript libraries.

Algorithm used:
Mirroring algorithm is used in this project:
Mirroring is the surface which will reflect a image. For a cloud to mirror, it will create a byte-for-byte copy of a cloud database. Mirroring is different than that of copying or backing up a cloud database in which the mirror database is updated at the same time when the main database gets updated which is called a synchronous or as early as possible after the main database is updated is called as asynchronous. Mirroring is done for the three main purposes:-
1. To maintain alternative copy of a database for harmless-possession. The backup copy may be present on disk of an in-memory database.
2. To unload reading of a database to another computer.
3. Ready to switch processing to another computer if the primary computer fails. This often occurs and even referred to as Highly-Available (HA) database.
Cloud mirroring is nothing but the creation and maintenance of redundant copies of a cloud database. The aim is to ensure that, to provide continuous data availability and in minimize the data corruption or loss or from a situation when the operation of a network is partially compromised. Redundancy also safeguards in such a way that at least one sustainable copy of a database will always remain manageable during method upgrades.
Two irreplaceable but related methods for maintaining nearly real-time copies of databases in supplementary locations, referred to as mirroring and copying. Both mirroring and replication use the same terminology for the roles of databases: the original, update database is called the master. From one master database, one or more slave copies can be created and apathetically maintained.
The terminology comes from the idea that the
1. Master database controls the generation of data, and
2. The slaves respond only when changes have been made on the master.
Two replicas of a single database belong to on different computers called server occurrences, usually in physical locations divided by some distance. The main (or primary) server instance offers the database to users. The mirror (or secondary) server instance acts as a reserve that can yield over in case of a problem with the main server instance.
If percentage accurateness is essential, database mirroring call for that the mirror server instance always stay up-to-date; in other words, the system must instantly replicate every change in the main content to the mirror and vice-versa, this mode is known as synchronous operation, the mirror will be called as hot standby.
Even though database mirroring can also work as soon as the content is not completely synchronized, some data harm may take place if one of the server instances be unsuccessful or becomes out-of-the-way, in such mode, it’s called asynchronous operation; the mirror will be called as a warm standby.
Uploading module:
Mirroring scheduling algorithm will be checked by the mirror copy of the user data. Mirroring will start when the CPU utilization goes below the threshold value (we can assume threshold value as 50%) and every day we will do the mirroring according to the time (assume threshold time is midnight (1 a.m.)). By using this concept of CSP(Cloud Service Provider ) we can maintain the log by which we will continuously (say after 5 or 10 minutes) check the row mirror stand, after examining the log, CSP can animatedly alteration the threshold standards.
Downloading module:
The foremost aim of this proposed technique is to provide the recovery of user data (files) though it has been corrupted or loss etc. so the main role of mirroring technique comes in downloading part, when user wants to download his requested data from the base cloud and if unfortunately the original data of user gets corrupted in the base cloud, then with the help of mirroring technique we will provide the same data stored by the user from mirror cloud. In the downloading it will use retrieval algorithm.

VI. IMPLEMENTATION
The figure 1 shows System structure of cloud mirroring for e-commerce data. There are two modules one is User and other Admin. In this the User can only login if it has created its account on this particular e-commerce site and if not then he/she needs to Sign Up and create account on it. Where User Info has to be feed in it for the future access on the website then it can login and go future. Once login is done then user can access the site and can perform activity on it. There is Uploading and Downloading module. In the uploading recent activity will be upload which will act like primary process and will be send to Server1 which will store it and act as primary database server and for future processing will be done. The mirroring will be done in the from Server 1 and a copy will be created which will be send to Server 2 which will act as secondary database. Downloading module will download the data which was lost and could be recovered back from cloud. The main aim of this technique is to provide user data by mirroring it. The Admin module will login where the Admin Area could control the activity. Then comes the mirroring main part, mirroring is possible in two ways one could be done automatically where timer will be scheduled which will work on the bases of time allotment and it will do its work copy its data from one server to another i.e. main database server to mirror server. Then the transactional data comes where admin area is there it can have list of activity where history will be present and other. This is how mirroring will work for recovering data from cloud.
VII. RESULT

The result will be seen in the admin panel, the below images shows the server side:

As we implement this project on the server cloud the connection is establish due to which we can see the connectivity between the e-commerce side and the server. The Figure 2(a) shows that mirror server is offline we cannot take the database data from the main server. Similarly the figure 2(b) shows that when main server and mirror server both are online database data is transferable due to which we can have the copy of the database of the main server, once we have the data in the mirror database it does not get affected even the main database gets crashed. This dashboard will always indicate main and mirror database connection.

The mirroring will help to have a copy of database each time data is entered or any activity done by the user on the e-commerce site. The mirroring could be done manually or automatically. The scheduling could be could be done from main server to mirror server or mirror to main server. This will automatically do the mirroring as per scheduling time allocated to it. The figure 3(a) shows the mirroring and figure 3(b) after mirroring is done.

VIII. APPLICATION

- This method mainly focus on mirror due to which we can use this method in e-commerce website where one server gets hang due to bulk of data or many users accessing it by which it gets slow, to remove such trouble or interruption in it we can use this method.
- This could also be used in email also; we could have data stored on the cloud which was mirrored by the cloud server.
• We can also use this for our files storage as the data is present in larger quantity and we don’t have enough space to store our file, by mirroring we can do it.

IX. CONCLUSION
The data of user is always valuable for him/her but assurance cannot be given by anyone whether the data will get corrupted or lost due to which recovery should be the done in such scenarios. Many other techniques have been proposed by which data recovery is possible but there are limitations which needs to be overcome. The cloud mirroring technique helps us with the high availability, integrity as well as retrieval of the consumer data. This paper shows how mirroring will help to store the data of the consumer of the e-commerce site.

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REFERENCES