Research on Data Recovery using Cloud Mirroring Technique with Load Balancing

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***Abstract* :** Data storage is primary concern. The data is get stored on user's system and there are many more chances that data could get overwrite due to data's load. That's why we have to balance the loads .RAM may exceed the memory or hard disk can get corrupted , balancing the loads the data have to get stored on clouds. And due to corruption data may get lost so we have to recover the data by cloud mirroring.

***IndexTerms* – Cloud computing ,Storage , data , loss , monitoring , backup , load balancing , recovery**.

I. INTRODUCTION

A Load balancing is the process of improving the performance at different servers. It can also generally be described as anything from among processors, or a system that divides many client requests among several servers. The growth in the popularity of the web in particular has increased the requirement for load balancing in managing different servers at different systems. The increase of online websites and online business. As a result of the popularity of the web, providers of web sites want to ensure the availability of access to information for their users and the guarantee that requests are processed as quickly as possible.

Cloud Mirroring: The main aim of clued mirroring is to stored data in backup. Taking backup is much more to user so that user could get the data whenever user required. Cloud mirroring is done after the monitoring of load. In mirroring one fundamental is get used this is known as "Main Server". Initially data is get stored in main from main it will further get for "Mirroring Server".

II. MONITOING THE LOAD

For monitoring load the threshold value has been assigned(Say 80%),along with this threshold value load on system will get managed."Load Balancing algorithm" plays an important role in monitoring. The general growth of monitoring the data is has been as online business and e-commerce websites . As a result of the popularity of the web, providers of web sites want to ensure the availability of access to information for their users and the guarantee that requests are processed as quickly as possible.

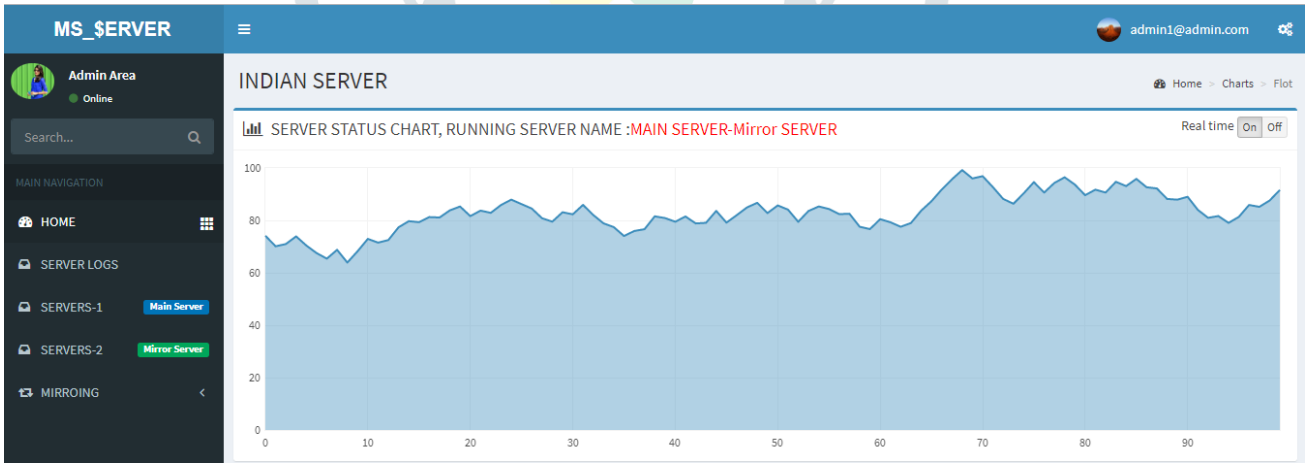

Figure 1 : Threshold

Suppose if load crosses 80% then the will start storing on the cloud which are created to balance the system's loads. There are two servers are given shown as follows:

1.Main server-which is also known as local server.

2.Mirror server-which is also known as cloud server.

Main server will access current data base by default. There are situations where main server. Main server can failed manually or disastrously. It considerably if one server is failed then another will work automatically.

To implement Load Balancing pseudo code for Algorithm:

Master Processor: Maintains the database (queue, heap, etc.)

```
While ( task=Remove()) != null)
  Receive(pi, request_msg)
  Send(pi, task)
While(more processes)
  Receive(pi, request_msg)
  Send(pi, termination_msg)
```

Slave Processor: The multiple database made by master are known as slave database

```
task = Receive(pmaster, message)
While (task!=terminate)
  Process task
  Send(pmaster, request_msg)
task = Receive(pmaster, message)
```

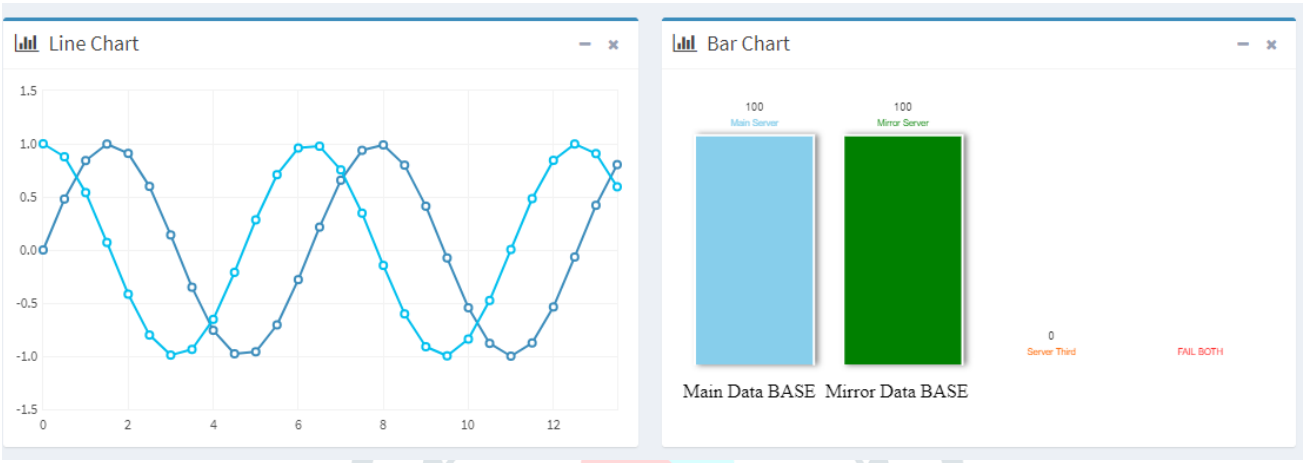

Figure 2 : Monitoring panel

III. DATA SET

Data storage is amorphous today.The mirroring is given for maintaining real time copies known as mirror and replication. . Both mirroring and replication use the same terminology for the roles of databases: the original, updateable database is called the master. 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.

Server instances are proposed as two copies of single database resides on different computers.
In data set some masters are get generated.
Database is generated with masters and slave.

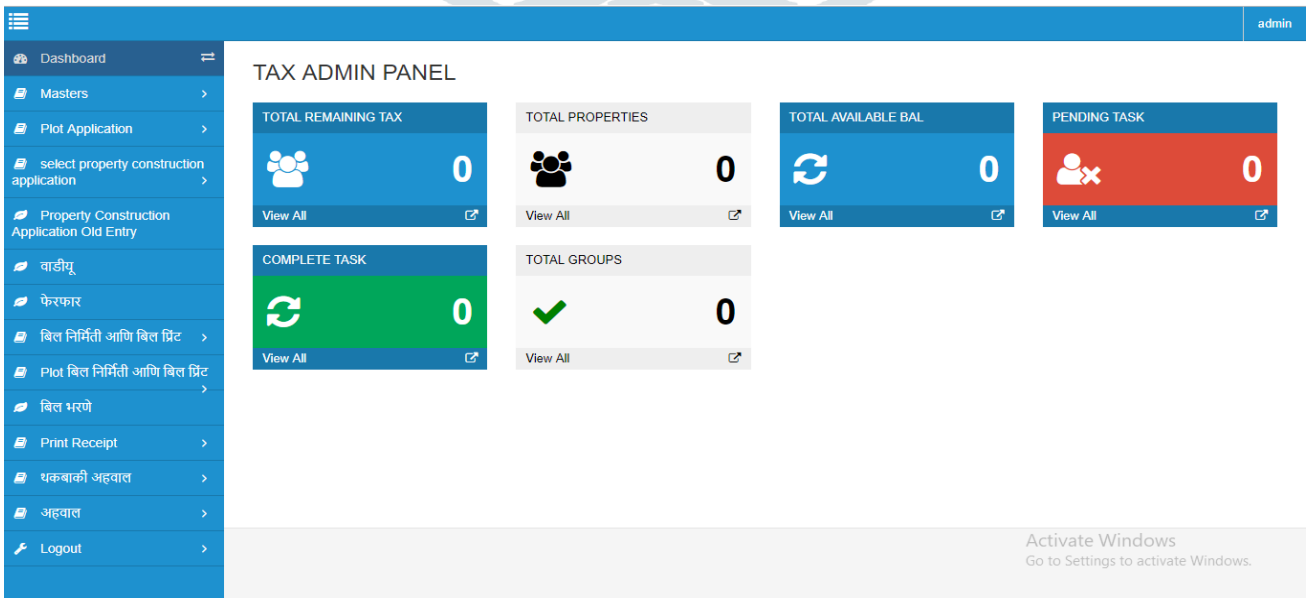

Figure 3 : Master panel

IV. SERVERS FAILURE

The failed server if both of the server get fails like as main sever and mirroring server then it will show the result of failed server in bar chart. Rather the server failure could be done manually or due to any system's disaster scenarios the failed server if both of the server get fails like as main sever and mirroring server then it will show the result of failed server in bar chart.

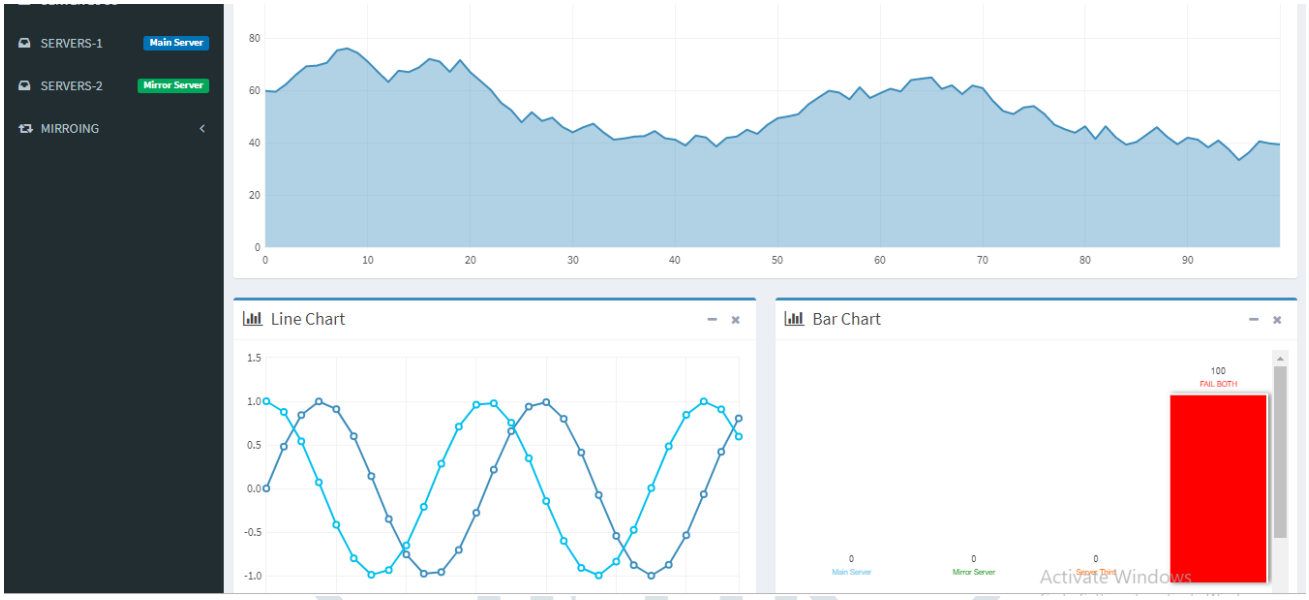

Figure 4 : Servers failure

V. CLOUD MIRRORING

Mirroring for will be done in the case of automatically and manually in this automatic and manually mirroring there are two servers are given that is mirroring will be done in both cases of main server to mirror server and from mirror server to main server. The mirroring is given for maintaining real time copies known as mirror and replication. . Both mirroring and replication use the same terminology for the roles of databases: the original, updateable database is called the master. From one master db, one or more slave copies of database can be created and dynamically maintained. The primary server instance provides the database to clients. The mirror server instance acts as a standby that can take over in case of a problem with the principal server instance.The time mirroring happen the original data is get updated. When at the same time mirrored data and updated data is get updated then the term is known as synchronous operation or hot standby mirror. And the term where only original data is get updated than mirrored data then it is known as asynchronous operation or warm standby mirror.

5.1 Mirroring algorithm

The proposed technique is broadly categories into two parts i.e. uploading and downloading. In the first part, user or clients data has been consist of files, documents etc. can be uploaded by the user on cloud whether it is in plain text or in encrypted format or in any other form.

Mirroring scheduling algorithm will check the mirror copies of the user's or client's data. Mirroring is going to starts when the CPU utilization goes below the threshold value (we assume the CPU threshold value is 50% or it could be any variable), and daily we will do the mirroring according to time (we assume time threshold is midnight (2 a.m.)).

By using the concept of CSP (Cloud Service Provider) we will maintain the log through which we will continuously(say after 5 minutes) check the row mirror counter for the mirroring process so that reach row will get mirrored simultaneously, after analyzing the log, CSP can dynamically change the threshold values.

Mirroring pseudo algorithm is as follows:-

- **Notations**

Cpu_Threshold --- CPU Threshold
Time_Threshold --- Time Threshold
Event_Threshold --- Event Threshold
Current_Cpu --- Current Cpu
Current_Time --- Current Time
MHD --- Main Hard Disk

Pseudo code for cloud mirroring

```
No_of_rows_mirrored= 0;
If (Current_Cpu< Cpu_Threshold)
While(RAT.length!empty||Current_Cpu<cpu_Threshold)
{
Mirror the current row of RAT and delete it.
No_of_rows_mirrored++
}
If(Current_Time= Time_Threshold)
while(RAT != Empty)
{
Mirror the current row of RAT and delete it.
No_of_rows_mirrored++;
}
Return No_of_rows_mirrored;
End of Pseudo code;
```

The main 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 part, when user wants to his requested data from the base cloud and if unfortunately the original data of user are gets corrupted in the base cloud where data is stored, then with the help of mirroring technique we will provide the same data stored by the user from mirror cloud.

The Mirroring could be don e in two possible ways those are as below:

1. Cloud mirroring from main server to mirror server.
2. Cloud mirroring from mirror server to main server.

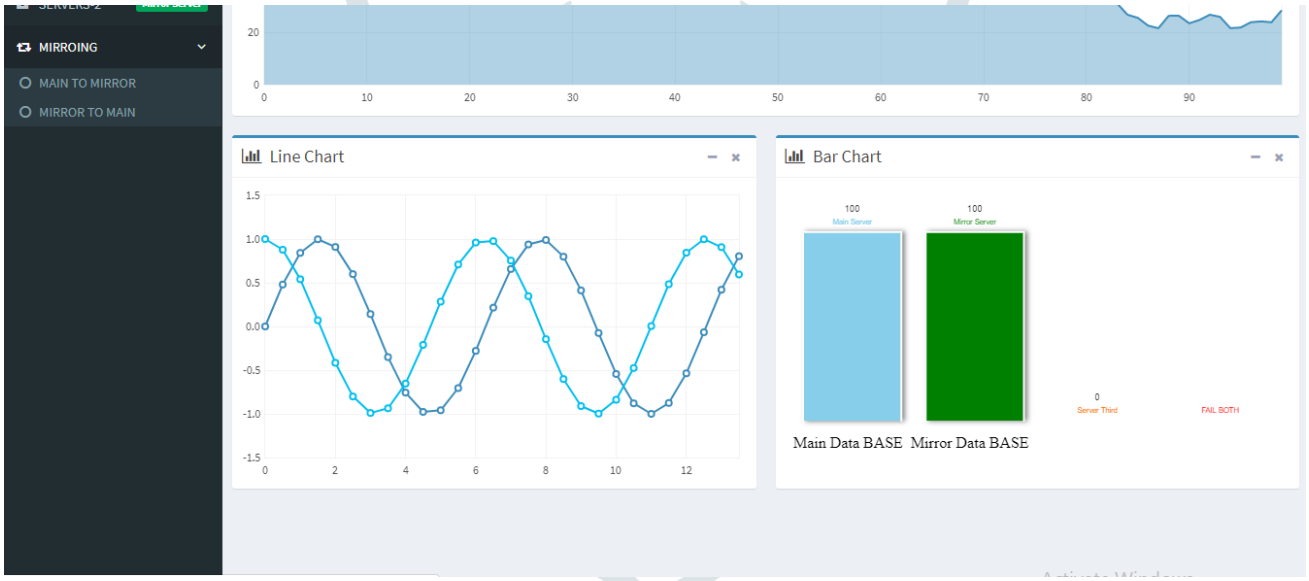

Figure 5 : Mirroring technique

VI. ADVANTAGES OF MIRRORING TECHNIQUE

1. To provide the high availability.
2. To provide data recovery by mirroring technique.
3. To maintain integrity of user's data.
4. To maintain the log of uploaded data and provide them the facility to restore their recently updated files.

VII. RESULT

In the proposed work the accuracy of data recovery will more than or equal to 97% so that it could give a client or user the recovery of lost data. Each and every data is important to its respective client so that client or user needs his/hers data whenever client requires. So from proposed technique "Mirroring" is makes sure that lost data will get back manually or automatically. the mirroring has been done from main server to mirror server

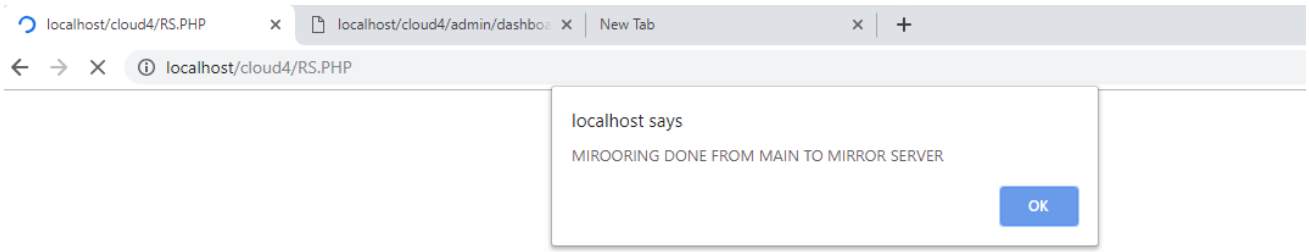

Figure 6 : Result for cloud mirroring technique from main server to mirror server

As shown in above figure the result will get in the form of local host's message that the mirroring has been done from main server to mirror server.

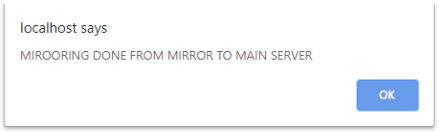

Figure 7 : Result for cloud mirroring technique from mirror server to main server

As shown in above figure the result will get in the form of local host's message that the mirroring has been done from main server to mirror server

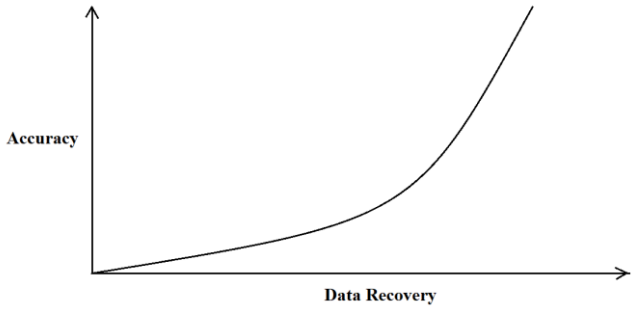

Figure 8 : Accuracy graph of cloud mirroring

VIII. FUTURE SCOPE

The scope is to move around the concept of file or data recovery from cloud by the technique called "Cloud Mirroring". The file/data recovery involves the recovery of corrupted data, or data crash etc. This technique known as cloud mirroring is widely get used in E-commerce platforms

IX. CONCLUSION

The data stored by the user is always valuable for him in the case of needed or not, but no one can assure whether his data cannot be corrupted or lost ,so data recovery plays an vital role in such scenarios. Various techniques have been proposed for data recovery but these techniques have certain limitations which need to be overcome. proposed mirroring technique we provide the high availability, integrity as well as recovery of user data (files). So for this issue we need file recovery mechanism for recovering the corrupted file. We have proposed file/data recovery technique by the concept of cloud mirroring. This technique will focus on entire data recovery in cloud.

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