A New Approach: Data Segregation Model

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Abstract:- Cloud computing is necessity in business world nowadays. It is providing good infrastructure to make work easy. Business entrepreneurs select the cloud on the basis of their requirements and goals. Cloud computing may be innovative, useful and flexible, it does not mean that it does not have drawbacks. To overcome advantages in this research paper introduce new approach Data Segregation Model.

Keywords: cloud computing, data segregation model, data prefetching

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I. Introduction

Cloud computing is boon for any organization. It not only takes away a lot of workload of the intranet but also gives organizations the capability to manage data anywhere and anytime without use of significant existing resources. Cloud providers use multi-tenant structures to maximize cost-effectiveness [1].

In routine usage, cloud computing faces a few challenges like data redundancy, inter cloud portability and pricing.Firstly, many a time data is stored over multiple locations in cloud to avoid data loss and crashes [2].Also it is a common practice among us to save lots of data in anticipation of some future useor reference like pictures, songs, movies, documents etc. This results in redundancy of data and in turnoccupiescrucial storage space.Today thousands of Giga bytes of data is uploaded every day and soon will become difficult to manage[3].

Secondly, pricing is a complex issue in cloud computing and there are a lot of ambiguities involvedin it [2]. Shared cloud of large organisations is shared amongst several employees and departments, whereinsome data like annual reports or announcements may be shared by all users and certain data might be unique to each user like individual sales reports in a cloud. A good example of this is a cloud of a college the academic and course material will be common for several students but projects and assignments might be unique. Hence,the question that arises here is to charge for the total storage used or for the data used by each user, considering the college itself as one user. Due to this complexity there are no standard pricing structures followed by cloud providing companies[2]. Lastly there is no standard platform used for cloud computing, which makes cloud portability a herculean task and a user cannot change the service provider easily.

II. Recommendation

Data prefetching and data segregation model can be recommendation to overcome disadvantages.Prefetching is a very powerful tool in cloud computing and it is entirely based on usage patterns of users and the system will store the frequently used data on one of the active servers.And the data which is seldom accessed of redundant will be automatically directed towards a set of passive servers. Although a very useful tool, yet, prefetching comes with a major shortcoming and that is cache miss.

In order to make better use of the existing network and environment a Data segregation model is recommended, where the local networks of an organization will work in tandem with a cloud. Data segregation will be used in this model. Data will be saved in cloud or local server.

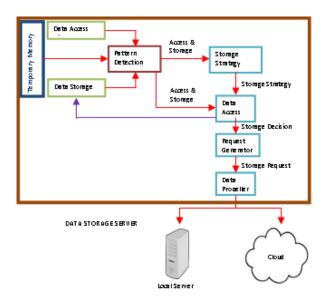### III.   Data segregation model

Fig 1. Components of data segregation model

In data segregation model there are seven components. Each component have different work to do on data. The group of these seven component can be said data storage server. Data storage server will decide the place whether it should be saved in cloud or local server. It also decides in which manner or pattern data will be saved.

The work of components are shown below.

Temporary Memory: When a data is saved either by a user or by an application, it will be first saved in the temporary memory module. Data from temporary memory will pass through the entire process as follows and will be pushed to its final destination for storage.

Data Access History: This component save the record of all patterns which are already used to save data. This will show access pattern of already saved data.

Data Storage History: This will show history of particular data when and where it was previously saved. This component will help to access data in less time as the place and pattern of data has been already known.

Pattern Detection Manager: The temporary memory will pass data to PDM. PDM will collect information from data access history and data storage history. This information will help PDM to identify a pattern of

accesses viz. location, frequency, time, user details etc. and its corresponding storage viz. size, location, time type etc.

Storage Strategy Selector: Selects an appropriate strategy or method to save the available data based on information of pattern given by PDM. This will give an answer to the question; "where to save the given data?"

Data access predictor: Here information from the PDM along with that from SSS will be combined and a decision on, "When to push the data to its assigned destination for saving it" will be taken. It will in turn assign a priority to each set of data in the queue waiting to be saved.

Request generator: This will send a request to save data.
Data propeller: Issues a signal to push data to its destination. Destination can be either local server or cloud.
The use of data segregation model is to save time. If user wants to access information or data.
Benefits of Data Segregation Model
Fast data recovery: because of pattern detection manager time to recover data is minimal. Place and pattern of data are already known.
Reduced data loss: important data can be saved either in cloud or in local server. If user wants to use the data immediately and reputedly data can be saved in local server. And important data can be saved in cloud so data loss can be reduced.

Fast data fetching: Most important advantage of this model is that user can fetch data easily because pattern and storage place is already decided by model.

Increase the efficiency of processor: This model will replace the data prefetching module.It will save precious time of the processor that is usually occupied in predicting "what to Prefetch" and "when to Prefetch".It will improve the efficiency of the processor as it will be free to perform other important tasks.

IV.   Conclusion

Cloud computing is a great technology for data processing. Every good thing has another side to it. Cloud also have some disadvantages. To reduce the

effect of disadvantage data segregation model is introduced. Different components can be used to segregate the data. And user can take the advantage of model like fast data recovery, reduced data loss, efficient processor.

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