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Secure Personal Storage System

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Abstract— The cloud makes to access the information from anywhere at any time but internet connections necessary to access the cloud. A lot of personal information & potentially secure data that people share on their computer. This information is transferred to the cloud now a day. The proposed system provides a secure and private storage service which contains social networks. We proposed, restoring to cloud for improving the storage service of F2F system by characteristic of data availability & small friend group. We present personal storage system that is trusted friends with cloud storage. Personal storage system is secure & private offsite storage service. Personal storage system is the efficiently combines resources from trusted friends and cloud services to provide a flexible, trusted and private personal storage system.

Keywords— Personal storage system, data availability, trusted friend, friend group, storage system.

I. INTRODUCTION

Cloud computing is the delivery of computing services over the internet. Cloud services allow individuals and business to use software and hardware that are managed by third parties at remote location. Personal storage system that combines resources of trusted friends with cloud storage for improving the service quality achievable. Every user handle hundreds of gigabytes to store digital information including photos, video, work document and communication flow like email and social communication. Dropbox, Box.net is examples of new storage companies (Personal Clouds). Its sophisticated storage services to end users by making use of raw storage provided by data center owners. If you are considering a cloud services, you should think about how your personal information, and that of your customer, can best be protected. Cloud computing can significantly reduce the cost and complexity of owning operating computer and networks. There is a lot of personal information and potentially secure data that people store on their computers and this information is now being transferred to the cloud.

Personal storage systems constitute an alternative approach to average personal storage [1], [2]. A social network consist of all the people i.e. friend, family and others with whom one shares a social relationship [3]. Users store their data in a set of social friends. Facebook has over 400 million active users. Over 63% of Facebook users have less than 100 friends [4]. User data is neither unknown peer nor stored in a centralized server. Popular social network such as MySpace and Facebook provide communication, storage and social application for hundreds of millions of users. Facebook in 2012, the number of members is 901,000,000 [5]. Social network provide a platform to facilitate communication and sharing between users [6]. It means a small number of trusted friends group on social network. Social network are popular infrastructure for communication, interaction, information sharing on the internet. Personal storage system is the efficiently combines resources from trusted friends and Cloud services to provide a flexible, trusted and private personal storage system.

II. RELATED WORK

In [1], it is important to take privacy into account when designing cloud service, if collection, processing or sharing of data. Various guideline and technique that used by software engineer to provide privacy. He explained different design pattern for privacy. Unauthorized access to personal data, security safeguard, allow user choice, user control are top tips for software engineers. In [2], F2F is cooperative backup as well as private file sharing. It does not depend on global sharing. Authors used friends instead of random peers to improve the stability of existing systems. They argued that P2P systems with random neighbor selection are very unstable and that using friends provides incentives for nodes to cooperate. In [4], bandwidth is necessary for reliable peer to peer storage. This paper focus on scalability, storage guarantee & resilience to highly dynamic membership. It guarantees require redundancy. If bandwidth is more, data increases with time. Social cloud [6], A Facebook application create a Social Cloud that enabling friends to share resources within the context of a Social network. Their prototype application is a marketplace where friends trade their resources using auctions and bidding mechanisms mediated by contracts. However, as stated previously, the availability of these resources cannot be guaranteed by the sole usage of friends. Online data backup [7], a hybrid architecture where resources at peers are complemented with temporal usage of Cloud storage services. Hybrid systems can be comparable to traditional client-server architectures but at a fraction of their costs. SafeStore [8] is a distributed storage system designed to maintain long term data durability. Also SafeStore store data redundantly across multiple storage service providers. SafeStore can provide highly robust storage. Audio protocol worked in SafeStore. OceanStore [9] is utility infrastructure design to span the globe and provide continuous access to persistent information. Data redundancy and

cryptography techniques protected data. OceanStore is persistence object called globally unique identifier or GUID. It is personal information management tool such as calendar, email, contact etc. it can be used to very large digital library.

FriendStore is good online backup system [10]. FriendStore is a cooperative backup system where peers use their friends to store information. FriendStore aims to solve both the availability and denial-of-service problems thanks to trusted relationships. It consists of collection of nodes administered by different users. Calculating maintainable capacity and trading off bandwidth for storage [10].

III. PROPOSED MODEL

Personal storage system will provide a cloud space to upload /download data the absence of friends and keep record in database that upload the data and download the data. Users are able to decide where to store their data which can completely on friend, only in cloud or mix of them.

- To providing social storage relationships among users.

Employ a social front-end as entry points of only those users which are members of the social network are capable of accessing to our Personal storage system. User management and access control issues are partially delegated to the social network avoiding additional complexity to the storage system. User makes account on cloud for connecting to this system. If he is not part of member, he can see the data but not download also.

- To storing and updating the data of users and the location of their data.

Users must download the personal storage data by connecting to the system. This system enables users to perform basic data operations, storing and retrieving files from the system. Client can store their information in the storage space.

- Introduce the charts that show how user's data is distributed among his friends and cloud.

The chart will illustrate where user's data is store and whom a user is storing data. The application state maintains up to date the data management information about user's files. This information expresses which friends store which files and the network address of each friend. The maintenance process of this information is carried out by personal Storage Clients installed at participants.

Data availability & transfer time are the main drawback of F2F system.

Data Availability: Maximum friend of user are offline. During night hour, it failed to maintained high data availability. If a friend were to upload a data to each of friend & most of them were offline so the user would have to wait for those friend to come back online before completing all data transfer. Users input file splits into k fragments of $1/k^{th}$ the size of the original file. k fragments are encoded into n redundant block k, k <= n, which are stored at different nodes to mask failures. The data redundancy required to store at different nodes to mask failures. Store a file is n/k for data redundancy. The original file can then be recovered by collecting any subset of k block and out of the total n.

Small FriendGroup: A small FriendGroup contain trustable friend over 63% of Facebook user have less than 100 friends [4]. A very few friends interaction account are less with other friend. Minimum friend interact with each other. Cloud storing service can completely guarantee data available and high amount of data redundant to make of friend. Data transfer speed is increase if small friend group is created.

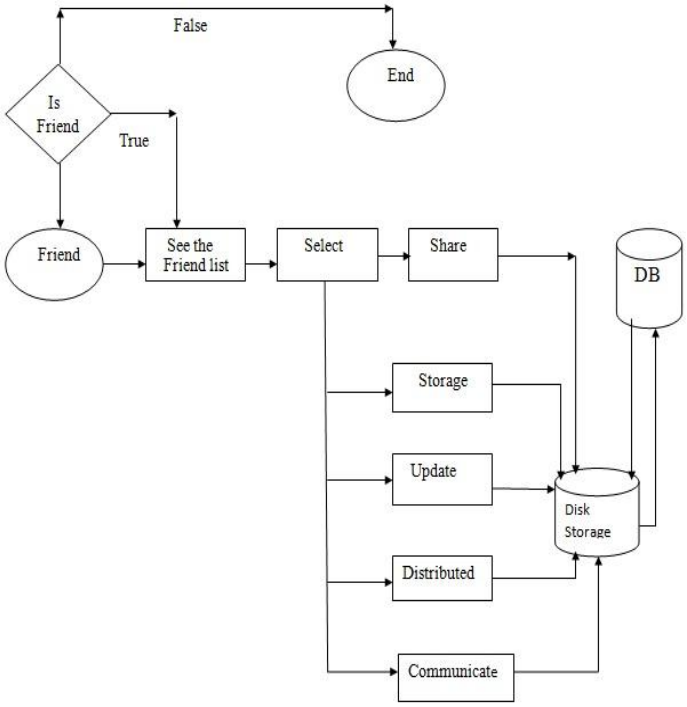

Fig. 1 Proposed System

IV. IMPLEMENTATION

Data transfer scheduling:

We applied random scheduling policy to schedule transfer among friend for both upload and downloads [11]. Block transfer is chosen completely on random. This mechanism reduces the upload TTS (Time Transfer Schedule). The main purpose is to schedule tasks to the adaptable resources in accordance with adaptable time, which involves finding out the proper sequence in which task can be executed [11]. Task scheduling mechanism can meet user requirement and improved the resource utilization and enhancing the overall performance of the cloud computing system also improve the resulting service quality. We consider that users are storing files during storage operation which is common file-sharing and storage application. We are not considering concurrent uploading and downloading.

We used RR scheduling algorithm [12] by given below

Steps: 1-The scheduler maintains a queue of ready processes and a list of blocked and swapped out processes.

Steps: 2- The PCB of newly created process is added to the end of the ready queue. The PCB of terminating process is removed from the scheduling data structures.

Step: 3-The scheduler always selects the PCB at the head of the ready queue.

Step: 4- When a running process finishes its slice, it is moved to the end of ready queue.

Step: 5- the event handler perform the following action

a) When a process makes an I/O request or swapped out, its PCB is removed from the ready queue to blocked/swapped out list.

b) When I/O operation awaited by a process finishes or process is swapped in its PCB is removed from blocked/swapped list to the end of the ready queue.

Transfer Capacity:

Upload and download BTT (Block Transfer Time) distribution for friends and cloud are plotted separately [7]. If high speed network is available then block transfer are faster than restoring to cloud. Downloading data from cloud is more common than uploading data to it.

V. SYSTEM REQUIREMENT

Hardware:

- Intel Core2 Duo
- 2GB DDR2 RAM.
- 100Mbps switched Ethernet links.

Software:

- Window XP/Vista/7
- PHP
- Apache Tomcat
- MYSQL

VI. EXPERIMENT RESULT

We designed a system which performed secure storage operation in the system. Here user can login to the system at any time. The availability of data is main task of our system. Buffer read/write method in Ajax is help to available data to the user. Write buffer make a free the cache to service read requests while the write is taking place. The uploading and downloading performance is increases due to small friends group. The round-Robin (RR) data placement is extremely simple to implement and preserve fairness among friends regarding storage load. Preserving load balancing in a reduced set of participants is essential to provide scalable storage and bottlenecks.

Uploaded Files to My Account: This button shows that browse a text file, audio/video file and upload this file to user account (See fig 2).

Share a file with other users: here user can share files to other user.

Check my files and share files from users: here user can see shared file

Analyze share data: its show uploaded files, shared by, date & time.

Your Files

File Path	Uploaded on	Download
files/284135816129_211378113367.pdf	02/09/13 09:16:07	Download
files/ieee-format1378117626.doc	02/09/13 10:27:06	Download
files/read1378263742.txt	04/09/13 03:02:22	Download
files/ieee-format1382087657.doc	18/10/13 09:14:17	Download

Files Shared with you by others

File Path	Shared By	Shared on	Download
files/dbffriendbox1378116790.sql	pooja	02/09/13 10:13:49	Download
files/i8086_instruction_set1378116810.pdf	pooja	02/09/13 10:13:49	Download
files/img1b631377335713.jpg	sagar	02/09/13 09:20:03	Download
files/img1b931377335720.jpg	sagar	02/09/13 09:20:03	Download
files/img1bb41377335724.jpg	sagar	02/09/13 09:20:03	Download
files/img1a241377335639.jpg	pankaj	02/09/13 09:18:11	Download
files/img1a341377335651.jpg	pankaj	02/09/13 09:18:11	Download
files/img1a541377335656.jpg	pankaj	02/09/13 09:18:11	Download
files/img1b221377335668.jpg	pankaj	02/09/13 09:18:11	Download

Fig 3: Uploaded files by user and with others

Fig 3 showing that database structure of secure personal storage system. Here first chart indicates that we have uploaded files which size limits should be less than 4 MB. User can also download files. Second chart indicated that, other friends have shared files with us from different location. We can download files also.

Fig 4, we clearly observed that total files uploaded 47. Out of 47, files shared by us 15 it means ratio is 31.91% and 9 files shared with user, the ratio is 19.15%. Here highest file shared by pankaj i.e. 50.

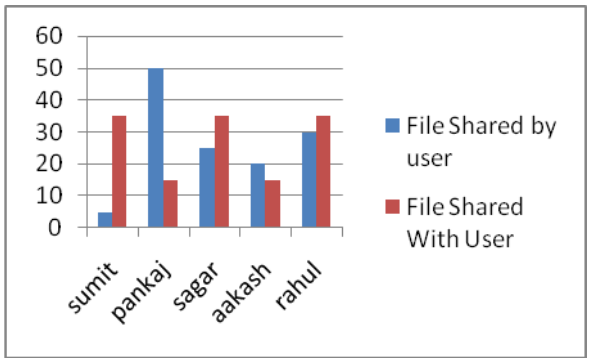

Fig 4: Result analysis of shared file by user & with user.

VII. CONCLUSION

In this proposed system, we overcome the limitation of F2F system and also to provide secure personal storage system. Personal storage systems are aimed to secure and private off-site storage service. We demonstrated that availability of data and data transfer capacity. Personal storage system that combines the resources of trusted friends with cloud storage for improving storage service quality while preserving privacy. System will provide a flexible and user-defined cloud so that it improves the performance of storage.

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