

A Cloud Based Automatic Recovery and Backup System with Video Compression

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Abstract: *Cloud Computing is process of hosting remote services over the internet. It provides data recovery easily .The system is having a persistent local backup which checks out periodically changes of data in the user folder. The compression technique is also the main objective of the system as to reduce the bandwidth which it takes for storing and accessing data from the cloud. The local backup process which is in the system itself where all the data of the user is stored securely. Video files are compressed automatically by the software known as FFMPEG and new copy of video file with compression is stored in to the local backup. The storage is over the cloud in the Microsoft one drive which has to be activated before storing data and retrieving data. The user data is updated each time and data backup is also present for the files added, deleted or modified. The one drive where the data is stored and accessible anytime and anywhere across the world. The user of data is the only authorized person to access the data. The sharing of data is possible and also the graph of various compressed and uncompressed file can be analyzed for the purpose of saving bandwidth. Data is protected both in local backup and stored over the cloud for automatically retrieving it. The result provides that the data security is given by maintaining two backups through which data can be easily retrieved with compressing videos to save the bandwidth*

Keywords: Skydrive API's Library, FFMPEG, Cloud Storage as a Service, File SystemTracker.

1. Introduction

Cloud computing in general is known as 'on-demand computing' which prevents corruption of data. It is Internet based networking where resources are shared. On-demand data, storage and security are provided with many options. Basically it is practice of hosting remote servers. Cloud computing can also be describe as which is a shared pool of all computing resources that are configurable and 'On-Demand' enables a ubiquitous model.

Cloud computing architecture where the components for cloud computing is necessary .By gathering all the components cloud computing architecture can be made. Backend is normally the storage and the network as considered as frontend. Thus the cloud architecture is made by using all the components[1]. Storage in cloud Storage in cloud from where data can be retrievable and various cloud such as private, public and hybrid can also be used .Software as a Service (SaaS)Installation and execution of the project over the cloud is carried out by SaaS.There are many server available and upon which the software has to be run .Development as a Service (DaaS)Tools which use in development of sharing the services are carried out here. Platform as a Service (PaaS) The Service is given through database. Different languages can be used and database is provided for the type of data in the software. Infrastructure as a Service (IaaS)Hardware and all the other devices such as heater, cooler, data center and cloud storage[2].

The main objective of this paper is to recover the data and also take two backups and also with video compression over the cloud. The rest of the paper is organized as follows. Section 1 gives brief introduction of the project with present and proposed system. Section 2 presents the background process of the project. Section 3 presents methodologies used in this sytem.Section 4 gives all the results for the research papers reffered in this project.Section 5 gives the results and also the figures for the proposed system.Section 6 presents the equation used for video compression and section 7 concludes the paper with summary of our contributions.

1.1 Present System

The present system of drop box does not have any recovery system instead if we lose any file from our local storage that is also gone from drop box storage. So presently we have a cloud based storage system which is automatic backup system. However the problem is that this present system does not have any recovery system which means that any data that is loosed locally will also be loosed from the cloud. However we want to improve in this way so whatever data you save in the cloud is accessible everywhere. So if any file is loosed it should be automatically recover from the cloud. This is the first problem. There is second problem is out of everything we can store various type of files such as image files, text files, word document, zip files etc.,So obviously we can save something called video files in the cloud. The whole file is going to be uploaded as it is. That will be very heavy which will consume a lot of internet data. In order to overcome this problem we want to enhance our project in a way such that whenever the user has got any video in the working folder it should not get backup

directly it should become compressed MPEG or other format compressed version should be stored in the cloud at the time of recovery. So the recovery becomes easier.

1.2 Proposed System

Currently drop box offers a cloud based storage but the problem with the drop box present system is that wherever some data is deleted from the local storage its also get deleted from the cloud storage. This is not desirable if I am creating a backup solution I also want same files to be available. If there is a problem in the local storage due to viruses or if we delete some files by mistake. In order to overcome this problem we want to propose a cloud based backup and recovery system that takes the advantages of drop boxes backup and extend with an automatic recovery system. Such that if a file is deleted locally it can be recovered from the cloud storage. The present system has also got drawback whenever user deals with video. Uncompressed video takes huge amount of bandwidth. In order to overcome that bandwidth problem we must compress the video. Video compression cannot be done with zip files it has to be re-encoded. The video must be automatically compressed at the background and then it is automatically uploaded into the cloud.

2. Background

2.1 Skydrive api's library

SkyDrive or OneDrive or SkyNet is a service provided by Microsoft through RESTful API where the storage is provided over the cloud. It provides highest reliability of data which is stored over the cloud Manipulation of pictures sharing of data and storing of large amount of data is provided by cloud.

2.2 ffmpeg

FFMPEG is the multimedia framework which is able to filter, play, mux, transcode, decode, encode and stream anything. FFMPEG run on Microsoft, LINUX etc. It gives priority to security and it provides quick updates. To encode the video file it uses **libx264** encoder as per video compression standard .

2.3 Cloud Storage as a Service

Cloud provides storage for large amount of data. Storing the data over the cloud and accessing it back is possible where the data is secured. Cloud Storage stores any type of data and also which secure the data from unauthorized access.

2.4 File System Tracker

Specifies any directory name by default it will search in debug directory. First it search for mainFolder.txt exist or not if it does not exist then it is going to open a folder Browser dialog. User need to select two folders one is working folder and other one is backup folder. When a folder browser dialog gets open user can click okay or cancel.

3. Methodology

C# .NET is efficient much more as compared to other programming language. It has rich CLR library functions for developers. C# is standardized version which is compatible completely for other systems of Microsoft Windows. It supports value-type and Reference-type which is notation of significant performance's# provides those all features which are completely lacking in other programming language as Java# is more powerful, flexible and executes faster# is having

modern features than Java and c++.C# has automatic management of memory for applications, windows networking applications. Any browser provides .NET services and functions which will effect computing world significantly..NET automatically updates information in the range of computing devices.

3.1 Automatic Backup

Automatic backup is nothing but if we create a folder and if we create any kind of content inside that folder that should be linked with the cloud account. Such that whatever changes that we make in our data should also be reflected in our cloud account. This is known as Automatic Backup.

3.2 Recovery System

Recovery system can be defined as in your working folder suppose by mistake you deleted some file or photos. Once you deleted if it having a recovery system what should happen is the file should get recovered from the location. The deleted file is also gone from your drop box account.

3.3 Video Compression

Videos takes a lot of bandwidth and we need more spave for compression .Thus the process known as video compression which compresses the videos which are uncompressed and also save the storage space.Thus the propose system is lossless compression where it saves the bandwidth time,and storage space for uploading and downloading without losing clarity. Place table titles above the tables.

4. Related Works

The propose system is provided by pre-backup check on daily basis. Test Unit Ready It not only successfully provides pre-backup checks, in advance enacting of backup job. The proposed backup job occurs of every scheduled at least one instance of pre-backup. The papers are relevant as it provide instances at scheduled checks pre-backup [3]. They propose strategies for recovering specific type of faults in cloud computing in certain layers.MTTE,RTTE,Cloud Service Failure Recovery System A series of recovering strategies are used for causes and effects of faults, failures. The paper is relevant for research because it recovers data from all the layers of cloud computing [4]. The problem they solved is fault tolerance, failover of cloud data. Amazon EC2, Gig spaces, Sun cloud, Summary of Result It provides services to the external users and sharing their resources with security and privacy. The user has been protected from the data war. The paper is relevant which prevents failover and data war of data of external users [5]. The problem they solved is minimal overhead by recovering and detects from both inconsistency and corruption. Journaling, ext4-cksum for, ext4, data check summing. Summary of Result It not only protects user data and prevents it from corruption and inconsistency. Protecting user data and recovering it equally preventing errors, inconsistencies. The paper is relevant for my research because the cloud based storage and recovery from both the local file system and cloud storage [6]. The system provides copy of complete data to be shared by all users. Storage Management Engine. Provides unique copy of data without need to store duplicate copies of entire data files. Stores a unique file and also reduces the storage by video compression. The papers are relevant for our result because it saves the storage location by compressing videos [7].Backup of Each storage at time

intervals. Conventional Restore Mechanism Performs Multi-class file system backups to reduce restore time Performing backup of each storage classes at given interval time. The paper is relevant for our research as it provide multi-class file system backup at given interval time [8]. The system is recovers data very shortly with low cost and availability of data rate is high.. ECC codes. Running random algorithms for obtaining multi objective results. The data can be retrieved with low cost with very intelligent scheduling process. The paper is relevant for research because it provides recovery of data and backups easily with low cost[9]. The problem they solved is clustering more than two server to reduce increase the performance. Microsoft Cluster Server(MSCS). Backup service is provided by server to multi computers. Clustering, data retrieving from server. The paper is relevant for research as it gives the clustering process with providing service from server[10]. The problem they solved by integrating a system that provide online and distributed environment for backup. Hybrid peer-peer system. Selecting the main peer for integration of both distributed and online backup. Managing peers and retrieving data from online. The paper is relevant for research because it provides backup with the hybrid system[11]. The problem they solved is by analyzing more than one files for finding out data loss. Data Loss Prevention (DLP) method. Distributed backup is provided and remote backup also with peer system. The process in which how to save data from prevention. The paper is relevant for research as it prevent loss of data and also backup[12].

5. Results

Currently drop box offers a cloud based storage but the problem with the drop box present system is that wherever some data is deleted from the local storage it also get deleted from the cloud storage. The advantages of drop boxes backup and extend with an automatic recovery system. Such that if a file is deleted locally it can be recovered from the cloud storage. Video compression cannot be done with zip files it has to be re-encoded. The Results shows video is automatically compressed at the background and then it is uploaded into the cloud.

5.1 Figures

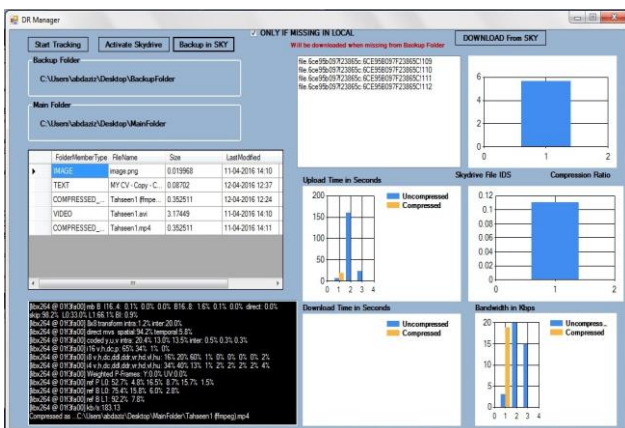


Figure 1: Uploading of Files

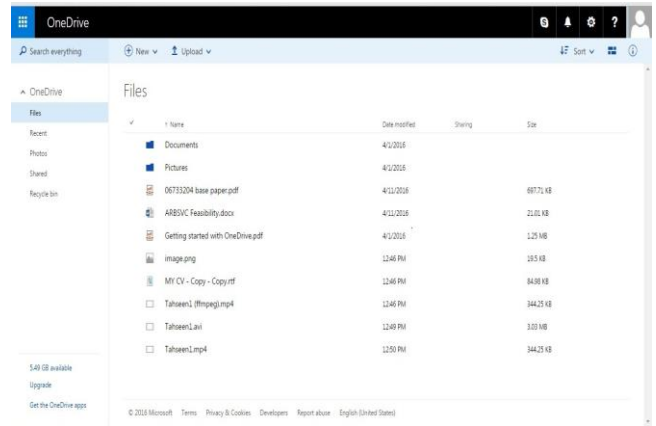


Figure 2: Files Uploaded into SkyDrive

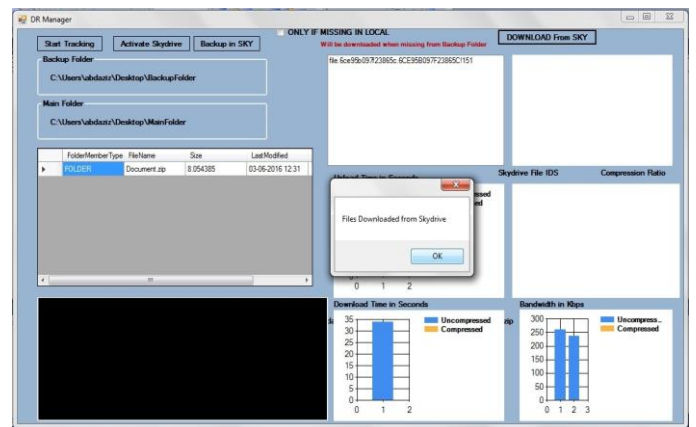


Figure 3: Downloading Data from SkyDrive

6. Equations

To encode this video file we use the **libx264** encoder as per video compression standard and slow enough just not to lose the clarity of the video. Strict experimental through which such as bandwidth, compression time can be noted as in (1). **-b1 192k** means which requires some memory to be compressed we allocate 192k of buffer cells and after that we are going to save a file with ffmpeg.

`-c:v libx264 -crf 19 -preset slow -c:a aac -strict experimental -b:a 192k -ac 2 "`

7. Conclusion

Cloud based data storage has been one of the popular ways of keeping the important data into the cloud with the advancement of technology and new services provided like Google drive, skydrive, drop boxes many of the user are keeping the important file in the cloud one of the major problem with existing system is that most of the cloud service provider focuses on storing and sharing document file. In this work we have proposed a novel technique to solve these challenges by automatically compressing the uncompressed videos before backing them up in the cloud. A novel dual backup system where the data is backed up in a local drive before it is mitigated to the cloud. If data lose the system first tries to find a copy of data stored in a local drive and if unavailable then only it recovers the data from the cloud. This dual system

provide better bandwidth utilization and with higher reliability of data storage results shows that the time required for compressing the video is much more less in comparison to the bandwidth of the uncompressed video.

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