**NEW IN PART B**

* **Backup methodology for the video files**
  + Must be able to recover videos for 60 days after they are deleted by a user in the Mo Vid web app.

When the user chooses to delete a file, our technology does not actually physically delete the file from storage, but instead marks the file as 'deleted'. And the system will mark the time of deletion of this file. In this way, we can calculate the difference between today's date and the date the file was deleted[1]. The file is still on the server and is still owned by this user, but its status label has changed to 'Deleted'.

When a user clicks to view their deleted file information, we will query all videos with the 'deleted' tag belonging to the user. The system will display the information of these files to the user. Of course, we only show videos that have been deleted within 60 days. When the current time is more than 60 days since a video was deleted, we will actually delete the video on the server and release the memory occupied by the video. and disk location. When users see their deleted videos, and these videos are less than 60 days away from the date of deletion, the user can click the 'Restore' button, so that we will change the status of this video from 'deleted' to ' normal'. In this way, the user can use the video normally again.

* **Backup methodology for the Mo Vid SQL data**
  + Must be able to restore any database changes for 30 days.

An inherent advantage of modern cloud-based technology is recovery speed and data reliability[2-3]. Backup methodology for the Mo Vid SQL data is a very important methodology in cloud computing. The approach our system takes is:

1. Use more reliable SQL statements to reduce the possibility of exceptions such as 'deadlock' and increase the ability to process information under concurrent conditions.

2. Use a backup of the database. The key implementation of this technology is the rollback of the database, which means that we can roll back the database information to any time (within 30 days). With this technique we can restore any database changes for 30 days.

3. Use disaster recovery techniques[3]. In order to roll back data quickly, data recovery usually does not include historical data. This shows that our system is capable of disaster recovery. That is to say, when an abnormal situation occurs, we need to allow the business to recover as quickly as possible. This means that the current environment only needs the current data, which will get the business back up and running quickly. Historical data can be rolled back slowly after business recovery. This means that cloud-based backup systems may need to regularly back up current data[4].

* **TCO of one year of costs for running the proposed cloud setup for 10 customers.**
  + Each customer will have 250 GB of Videos.

The economics of cloud computing technology is also an important aspect that we need to consider. Our plan is that Each customer will have 250 GB of Videos. This obviously requires a lot of storage resources, which are the rarest [5]. Therefore, it will also cost us a lot of money. However, the cloud computing industry is developing rapidly, and the future prospects are very good [6]. And cloud computing customers are willing to pay for cloud services [5]. Therefore, such a plan is feasible and successful.

TCO (Total Cost of Ownership) includes the cost of product purchase to later use and maintenance. This is an evaluation standard that companies often use. If Each customer will have 250 GB of Videos, 10 customers will need 2500 GB of storage. And we also need to take into account the cost of aging, maintenance, and renewal of equipment. Now the cost of renting a server with 2500GB of storage space varies in different countries. But overall, if we use CPFS (Cloud Parallel File Storage), the total cost is about tens of thousands of dollars a year. Such a cost is acceptable to us.

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