COMPUTER NETWORK PROJECT PROPOSAL

DECENTRALOUD

A way forward for cloud storage

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Introduction

Decentraloud is a cloud based distributed storage solution for those who believe that a cloud storage should provide secure, safe and affordable service. The centralised cloud storage provides one to two principles out of three but the user never feels confident using their service. Because the security is already exploited, as the cloud owner has access to all data. On the contrary, Decentraloud will easily deal with these issues in the following manner:

Security is maintained using the concepts of asymmetric keys. Each user will have their own set of public and private keys which they will use to encrypt and to decrypt their data. Data encrypted with a user's public key will only be useful to that user because only he/she can decrypt it (Personal Cloud). Data encrypted with a user's private key will be visible to all users, Hence the data is broadcasted (Public Data Sharing). And finally, data encrypted with any other user's public key will only be useful to that user (Private Data Sharing).

Distributed solutions are free from single point of failure, thus maintaining the safety of data. Many nodes may have the same copy or chunk of data, which guarantees no single point of failure as in the central solution where all data is in one place.

The reason why distributed solutions are affordable is because they do not have a single investor. Many small computers participate to make a powerful cluster, therefore the initial and maintenance cost is reduced. Further, distribution reduces costs because it is only one customer per computer.

Methodology

The mechanism is quite simple. User uploads a file, the file will be divided into smaller chunks, each chunk will be encrypted using the user's provided key and then all the chunks will be distributed across the network. We will be implementing the decentraloud in python.