School of Engineering and Applied Science

Ahmedabad University

Cloud Computing (CSC440M)

Project - Distributed Secure and Highly Available Cloud Object Storage

Team Members: Bhavya Patwa, Kaivalya Shah, Karan Patel, Maitrey Mehta, Riddhesh Sanghvi

This project aims to provide distributed, decentralized, secure, reliable, highly available, and scalable storage service solution with the help of remote storage nodes provided by connected peers and parallelized worker nodes provided by the cloud/ master server.

The user can perform three operations namely: listing, uploading, and downloading files. The request is sent to the master server where the user is **authenticated** and the request is then forwarded to a **queue**. The **worker nodes** poll the queue as soon as they complete their previously assigned task. The worker nodes are responsible for efficiently dividing and **encrypting files into shards**.

They further algorithmically with the help of pseudo random functions decide and distribute **three copies of every shard** into the remote storage nodes. A **NoSQL database** pertaining shard details and a separate log database is also maintained. During downloading, shards are retrieved with the help of object ids given during creation and rearranged and combined to form the file.