

**MASTER'S PROJECT (FALL 2017)****TOPIC:** *An Efficient and Secure Personal Cloud Storage on Google App Engine***PRESENTOR:** Yucong Cao**ADVISOR:** Dr. Haiping Xu**DATE & TIME:** Friday, January 26, 2018**LOCATION:** Dion 302E (Demo)**COMMITTEE MEMBERS:** Dr. Xiaoqin (Shelley) Zhang and Dr. Hua (Julia) Fang**ABSTRACT**

Due to the unreliability of the traditional storage methods using hard disks and flash drives, more and more people have started to use the clouds to store their private documents, photos, and videos. However, existing commercial cloud solutions, such as iCloud and airdrop Baidu cloud, are not suitable for users to store their sensitive personal files. There is pressing need to provide users personal cloud storages that are not only secure, but also efficient and convenient to use. To achieve this goal, we developed a personal cloud storage on Google App Engine. Our approach supports all necessary functions for a net drive, including the login interface, file uploading/downloading, file searching and file deletion. In particular, we implemented a special functionality called *flash-uploading*, which can upload a large file in seconds if the same file has been uploaded into the cloud before. To achieve this, the server-side application checks whether a file exists in the cloud upon receiving an uploading request. If the file exists, the server promptly informs the user that a flash-uploading is done; otherwise, the file is uploaded, and all related file information including storage address, uploading time and the file name are recorded on the server side. To make the cloud storage secure and efficient, we divide a file into encrypted multiple pieces that allow concurrent uploading. Three key pieces of information, namely file Md5, file block name, and user name, are recorded and can be used for searching and flash-uploading. When downloading a file from the cloud onto a client machine, a list of file blocks that belong to the requested file, is retrieved and downloaded onto the local drive concurrently. Once all needed file blocks are available on the local drive, they are combined into the original file.