SUPINFO Academic Dept.

SUPINFO International University

INSTITUTE OF INFORMATION TECHNOLOGY

Group Projects - SUPFile
M.Sc.1

Contents

2017-2018

Version 1.0
Last update: 1/12/2017
Use: Students/Staff
Author: Steve COLINET

TABLE OF CONTENTS

1. Project Overview

SUPFile Inc business model is to sell online storage space across Internet. Two infrastructures must be created. The first infrastructure is a cloud of the web interface to files access. The second is the storage. Each user have 30GB to store files. Some files can be viewed online directly. For example Movies, Pictures and text files.

You've selected as the main subcontractor that will undertake the development of the POC.

2. Functional Expression

Users primarily store files through a website. The website allow users to add, remove and view files.

2.1. Software development

The product is split in two parts: A core that store files and a website that access and manage files and accounts.

2.1.1. Core

This system must have a powerful file storage system that can be expanded at any time depending on the number of users.

When a user registers 30GB are assigned to him on one of the least used servers. At a minimum we have three storage servers.

2.1.2. Web application

Users use the web application to access files.

2.1.2.1. User accounts

Users need an account to use website features. However, if they already have a Facebook or Google account, they can automatically link it to their account. If they don't they can create an account with their email address.

User accounts allow to store 30GB of files. Those files are only available when the user is logged into his account.

User can update his informations. accounts allow to store 30GB of files. Those files are only available when the user is logged into his account.

2.1.2.2. Web Interface

Note

The interface must be simple and ergonomic.

The files and folder are displayed as a list if the user is connected. At the top of this list should be a menu to create a folder, add a file.

A context menu on a file or folder must be able to rename it, delete it, download it, move it to another folder and create a link to share it openly.

If the selected file is a picture or a video the context menu can display an online viewer.

If a folder is selected it must be possible to download it in ZIP format.

In a folder it must be possible to drag and drop a new file.

If the user is not logged, this web application must have an index page to present this solution of file storage and invite the visitor to create to create an account. He'll have to go through the account creation process (or use a Google/Facebook account)

2.1.2.3. Web API

A REST API must allow to access to all features of the Web client. The exchanges of this API must be in JSON.

This API must list files and folders, allow file upload and download, rename, create a new folder and share a folder or file via a link.

Users must log in with this API to use the file service.

2.1.2.4. Android Application

The application must be able to use the Rest API and all its features.

2.2. Supporting architecture

The supporting architecture must be reliable and efficient. It has to provide two main features: High availability of the application components, and storage.

2.2.1. Web client cluster

The web client must also run on an high-availability cluster.

2.2.2. Storage

The solution must make use of a SAN. In your POC you can create an iSCSI SAN using heartbeat. The network design should be done accordingly. The storage is a critical part of the setup.

3. Deliverables

Students should include the following elements in their final delivery:

3.1. Software development

- A zip archive with the project source code. The source code must also come with the build system used (Project file, autotools...), if any.
- Project documentation, based on the template.
    - Technical documentation explaining your choices and/or implementation choices/details on the following items (at least):
- Deployment manual

The first document is an academic document. Address the reader as a teacher, not a client. The last one (deployment manual) should address the reader as a user. These documents can be in French or in English, at your option.

3.2. Supporting architecture

- Network architecture schema, with all components.
- All server configuration files.
- Anything you find relevant.
- Project documentation, based on the template.
    - Technical documentation explaining your choices and/or implementation choices/details on the following items (at least):
        - Networking
        - Clustering
- Step-by-step deployment manual

The first document is an academic document. Address the reader as a teacher, not a client. The last one (deployment manual) should address the reader as a user. These documents can be in French or in English, at your option.

4. Graded Items

The project will be graded as follows, on a 220/200 scale:

- Documentations : (50 points)
  - Project documentation : 10 points
  - Technical documentation : 10 points
  - Deployment of web client manual : 10 points
  - Deployment of storage manual : 10 points
  - API documentation: 10 points
- Software development (65 points)
  - Core (30 points)
    - Three servers is present for this POC(15 points)
    - A new user have 30 GB reserved in the storage (15 points)
  - Web Application (35 points)
    - Login/Logout a user (2 points)
    - Users can create an account with their email address. (2 points)
    - Users can use their Facebook to create an account. (3 points)
    - Users can use their Google to create an account. (3 points)
    - A menu is present at the top of list of files (2 points)
    - If the user isn't connected a description of the service is displayed (2 points)
    - User can navigate in his folders (3 points)
    - Send a file(2 points)
    - Create a folder (2 points)
    - Download a file(2 points)
    - Rename a folder or a file(2 points)
    - Share a folder by public link (2 points)

    - Movies,pictures and text files are displayed online (8 points)
- Web API (20 points)
    - Can login/logout (2 points)
    - Display all folders and files of the connected account(2 points)
    - Send a file (4 points)
    - Create a folder (2 points)
    - Download a file(4 points)
    - Rename a folder or a file(3 points)
    - Share a folder by public link (3 points)
- Android Application (25 points)
    - Can login/logout (2 points)
    - Display all folders and files of the connected account(4 points)
    - Send a file(4 points)
    - Create a folder(4 points)
    - Download a file(4 points)
    - Rename a folder or a file(4 points)
    - Share a folder by public link(3 points)
- Supporting architecture (40 points)
    - Web cluster (20 points)
        - The web client is high available and can survive losing nodes. (20 points)
    - SAN (20 points)
        - All storage is SAN-based. (10 points)
        - Can extand the storage easily. (10 points)
- Bonus (20 points)
    - Bonus features done by the students. (20 points)