Collapp - Real Time Online Code Collaborator

AradhyaTulsyan, Aaron Brako, Rahul Parekh,.Neepa Shah, AnujaNagare

Information Technology
Dwarkadas J. Sanghvi College of Engineering
Mumbai, India

Abstract— **Online Code Collaborator (Collapp) is web based Remote-FTP/SFTP (File transfer protocol / Secure file transfer protocol) code collaborator for software development teams. The application connects to any remote server and can also integrate with Git services like Github. It enables code editing, which helps developers maintain their code and development environment.**

Collapp is useful to developers for accessing their code and files through any machine via their web browser irrespective of any Operating System. It allows members to make live changes without the need to have local copies of their files on each machine. This makes development on the fly much simpler and convenient.

Here, we propose Collapp, which makes use of open source languages and technologies such as Python and FTP/SFTP/SSH (Secure shell) protocols. The built-in text editor and real time collaborative features such as chat, team management, notifications etc. help reduce development time tremendously.

Keywords— **online code collaborator, collapp, online text editor, online IDE, IDE for teams.**

I. INTRODUCTION

A developer is much too dependent on the environment he/she is using while working on a software project. This dependency is caused by the operating system being run on the host machine. However, this can be eliminated if we move to a common ecosystem ie a web browser. We propose to develop a web based code collaborator complete with FTP support to access and edit the remote files directly and push changes to the server from anywhere.

The objective of the project is to build a web based solution that is not dependent on the client operating system that provides the developer with tools to work on the software project from any machine. The benefits of the said system are given below:

1. Online FTP/SFTP access
2. Run SSH commands from within the browser.
3. Collaborate with team developers online.
4. Github integration and push to remote server.
5. Create multiple workspaces and access list.

The implementation of the said system is done using multiple open source technologies like Apache server, Python Pyramid web framework, Angular JS JavaScript framework, LESS CSS framework, HTML etc.

A. Organization of the paper

Related Work (Section II) details the number of similar systems that aim to solve a similar problem along with their pros & cons. Proposed System (Section III) describes the system architecture and its benefits. Conclusion (Section V) summarizes the goal of the project and discusses the scope of improvement.

II.RELATED WORK

Here, we describe existing systems that are similar in their purpose to that of Collapp along with their pros and cons.

Google drive [1]: The online application from Google allows users to create documents and share it with their peers. They maybe word documents, excel sheets, power point presentations and can be edited in real time.

Google wave [2]: Google Wave allows for a very engaging conversation where you can see what the other person is typing, character by character, much like how you would converse in a cafe. This is very much like instant messaging except you can see what the other person is typing, live. Google Wave also allows for a more productive collaborative document editing experience, where people don't have to worry about stepping on each other's toes and still use common word processor functionalities such as bold, italics, bullet points, and headings.
Other examples include:

1) Collaborative document editing
Examples: Google docs [3]
Pro Real-time document editing and sharing
Con Files are limited to docs, spreadsheets etc.

2) Project Management Webapps
Examples: Podio [4], Basecamp [5], Trello [6] etc.
Pro Project Managemnt aimed at groups.
Pro Designation of tasks, activity updates.
Con Not geared towards web developers.

3) File Sharing and Syncing Apps
Examples: Dropbox [7], Sugar sync [8], Google drive [9] etc.
Pro Local file sharing and syncing
Con Cannot protect against concurrent access
Con Files must be manually uploaded to your server

III PROPOSED SYSTEM

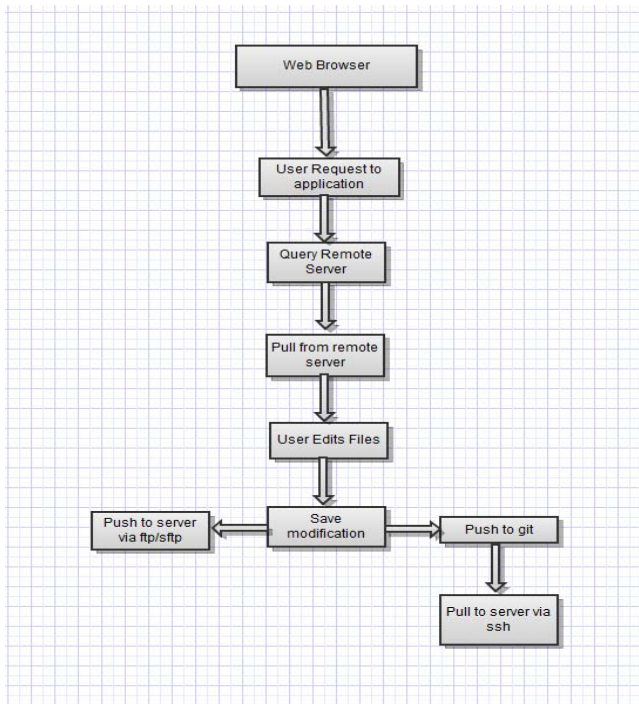Here, we briefly describe the architecture of the system.

Fig. 1 System architecture of Collapp

The user simply visits the web application using the browser and queries the remote server for specific files. The user is then able to edit the file, similar to a conventional IDE, and then saves his/her changes. The updated file is sent to the server using FTP/SFTP or using SHH via Git.

In this new system, we have brought together the technologies to provide a complete development environment for the end user on the web. The accessibility of the remote machine files on the browser allows the developers to update and maintain the code-base without having to worry about the native environment.

Collaboration is done using a pointer [9], where the cursor for each user maintains state on the client and syncs with the server at regular intervals. The online IDE [10] in the system provide full syntax highlighting and supports multiple programming languages.

A. Benefits of Proposed System

1. All one needs to manage a development project is a compatible web browser. All the users settings and preferences are stored with his login credentials so he can expect the same experience with any of his devices.

2. Version control lets users create and maintain multiple versions of the same file, which makes it easy to revert to previous versions in case of major bugs.

3. Collaborative editing lets multiple users edit files simultaneously and group-chat lets them communicate effectively.

4. Built in FTP/SFTP means that users can edit and upload files directly to the web server effortlessly straight from the app. This eliminates the need for any additional software.

IV CONCLUSION

Here, we summarize the goal of the paper and describe possible future improvements.

This paper details our attempt at streamlining collaboration and helping developers maintain live sites with extreme ease by throwing away restrictions, which traditional desktop environments come with.

The following features can be implemented to further improve the productivity and robustness of the system:

- File / Project wide search / search and replace functionality including result highlighting, regex support etc.
- Support for multiple cursors for improved productivity.
- Drag-and-drop functionality to add files/projects into the workspace, or directly to the remote server via FTP.
- Built-in Command Line for access to powerful commands without having to switch applications.
- Ability to import/export projects to and from services such as Dropbox, Google Drive etc.

REFERENCES

[1] Google Drive website. [Online] Available: http://drive.google.com
[2] Google Wave website. [Online] Available: wave.google.com
[3] Google Docs website. [Online] Available: http://docs.google.com
[4] Podio website. [Online] Available: http://podio.com
[5] Basecamp website. [Online] Available: http://basecamp.com
[6] Trello website. [Online] Available: http://trello.com
[7] Dropbox website. [Online] Available: dropbox.com
[8] Sugarsync website. [Online] Available: http://sugarsync.com
[9] Xia, S.Griffith Univ., Brisbane, Qld.Sun, D.; Chengzheng Sun; Chen, D. "*Object-associated telepointer for real-time collaborative document editing systems*", services, pp.25-52, Collaborative Computing: Networking, Applications and Worksharing, 2005 International Conference.
[10] Ling Wu, Guangtai Liang, Shi Kul, Qianxiang Wang, "*CElipse: An Online IDE for Programming in the cloud*", services, pp.45-52, 2011 *IEEE World Congress* on Services, 2011.