Build website teaching aids based on cloud computing. Experiments in the college of information technology – The University of Danang – Vietnam

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Abstract— **Nowadays, applying information technology to teaching is a new trend. Although there are currently many solutions, E-learning teaching support systems are still concentrated in some institution, many teachers have not had the opportunity to access applications in teaching, especially the software will be charged, therefore cloud computing is the best solution. Some proposed models built on a cost-effective cloud computing platform are not widely available to many teachers. With the above issues, this article will present free cloud computing applications to build a website teaching aids for all teachers, focusing on those who do not need to be programmers. Our contribution is a model which is helpful for may teachers with many purposes in teaching online. The final result is a complete website based on cloud computing which can use to achieve many goals of teaching.**

Index Terms— **online learning, cloud computing, blogger, no coding required.**

I. INTRODUCTION

In the Information Technology era, there are too many tools for teaching and learning such as Microsoft software, design, analysis and online storage applications. And the needed for a teaching-learning support system has been met by experts and researchers who have built software, online teaching environments that support teachers and students. But the main problem is that these softwares are free for most all teachers and students? How many educational institutions are there, how many teachers and students have been using this software? Is the cost of building the software expensive? Can all teachers have the financial resources to buy a software that supports online learning? Are all teachers qualified enough to create software that supports online teaching?

With the proposed systems built on a free cloud computing platform, there is still limited use of the target, users have not been able to create a website for their own needs. The question is: why not use a combination of free, accessible, and freely available applications that all teachers can design for their own, without the requirement for programming skills design.

In order to create an online website teaching aids, a combination of the following proposed tools is needed:

1. Blogger / Blogspot: is a free Google platform, with unlimited bandwidth and space. You can create your own website or blog, without having to pay for hosting or domain[5].
2. Google Drive: is the good storage service available, more than any other storage service, it's free up to 55GB, it supports Office file previews, images, clips and much more, download at a faster rate than other hosting services many times.
3. Mediafire.com: is a reputable data sharing website and familiar to many computer users. With its simple features and user-friendly features, users will be able to upload, download and use MediaFire features in the best possible way.

The purpose of this research is to create an independent teaching aids system through an online environment where teachers can use the internet to create learning models that interact with students in their own way.

II. RELATED WORK

There are a number of reasearches relating to build the system based on cloud computing support for learning and teaching, most of them focused on built a system and virtual.

Al-Zoube, M. [1] built a virtual and personal learning environment which combines a wide range of services to create an interactive tool for education based on services available in the cloud. And it provides the learners a well-known environment where they can easily achieve their learning goals, and flexible architecture enabling learners to mash-up heterogeneous set of services that support different learning activities such as production, distribution, reflection, and discussion.

Dong, B., Zheng, Q., Yang, J., Li, H. and Qiao, M. [4] an e-learning ecosystem based on Cloud computing infrastructure is presented. Cloud computing realizes an e-learning ecosystem with the infrastructure which is reliable, flexible, cost-efficient, self-regulated, and QoS-guaranteed.

Pocatilu, P., Alecu, F. and Vetrici, M. [8] Using cloud computing for e-learning solutions influences the way the e-learning software projects are managed. There are specific tasks that deal with finding

providers for cloud computing, depending on the requirements (infrastructure, platform or services). Also, the cost and risk management influences the way the e-learning solutions based on cloud computing are managed.

Miseviciene, R., Budnikas, G., & Ambraziene, D. [6] The use of MS Live@Edu environment for educational purposes is summarized by explaining the advantages of cloud computing gained both by lecturers and students.

Most models have proven its effectiveness, but there is still a lack of practical applications based on the benefits of cloud computing. With a few practical applications mainly focused on composing lessons, sharing lessons, interacting online, hosting online, doing online lessons.

III. COLLABORATIVE SYSTEM

A. *Overview*

The website is designed to support teachers have a personal website and can develop their own website as a learning and research tool [2].

An overview of the website will operate is depicted as a rich picture in Figure 1.
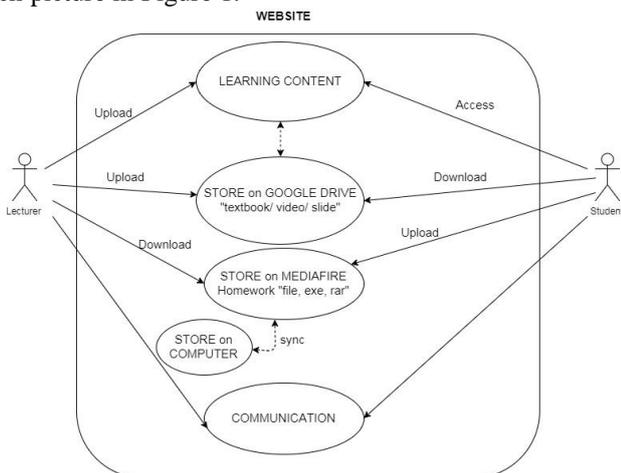

Figure 1. Rich picture of website Collaborative system

As can be seen, the functions that organize the lessons on the website are similar to those already available. With the free online application google drive, the teacher will receive a lot of incentives from this program, such as the organizer tool, store many formats with large capacity. With free smart work apps like Google Docs, Google Sheets, Google Slides, Google Forms, teachers will easily create electronic documents, online tutorials, online testing [7].

But it still will not meet the needs for some subjects, such as programming subjects, design in the IT area, students have to do the exercise with specialized software on computer, then create the product and submit. Therefore, the advantage of this new system is that teachers can create a simple online submission system that is as efficient and secure as other professional systems. It can store and manage all student assignments.

This website also works very flexibly, suitability with the many goal uses of the teacher and simplifies the online classroom process. Students will be able to access lesson links, assignments, and postings on the website, during the course from beginning to completion. Students will not need to register for an account as well as logging in and this will make them feel more comfortable and more easily when studying here. This method is appropriate for teachers teaching different classes and saving much more time than the google classroom application for gathering email addresses and student accounts in the class to qualify for the implementation online class.

B. *Website building process*

This section introduces the process of building a multi-faculty website teaching aids for many teachers who are eager to build a personal website. It is also a powerful tool in applying information technology to their teaching.

The main task of this model is to help teachers create a personal website using blogger / blogspot so students can access to receive curriculum, lectures, as well as assignments. Teachers can design, share lectures, assignments, where students can watch live on the web without having to spend time and memory to download personal computers because the materials are shared on Google Drive. At this website students can interact with the teacher through the comments section. After completing the course, the teacher will create an online submission system on the mediafire application, where the student is very easy to make the submission.

Step 1: website building

- Teachers access to the website: www.blogger.com, then register for a free account or log in using their existing email account.
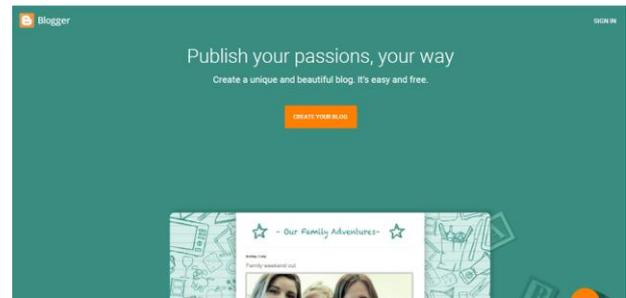

Figure 2. Blogger page

- After confirming the creation of the blog, the teacher will be directed to the management page for all blogs on the teacher's Google account. Then the teacher clicks the "New Blog" button to create the blog.

Figure 3. Create a new blog

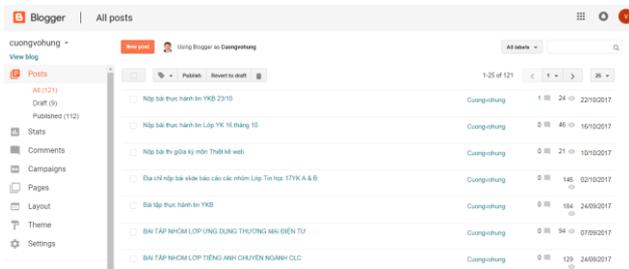- Post the Blog, click on the New Post button to create a new blog post.

Figure 4. Create new bài học

- At the teacher's edit page, fill in the information for the purpose of the lesson to create the lesson.

Figure 5. Content page

- The result is shown in Figure 6.

Figure 6. Lesson page

- With the high number of visitors, it is obvious that the teacher's website will be easy for students to find on the famous google.com search engine. In Figure 7, the author's website is easily found and accessed on google.com.
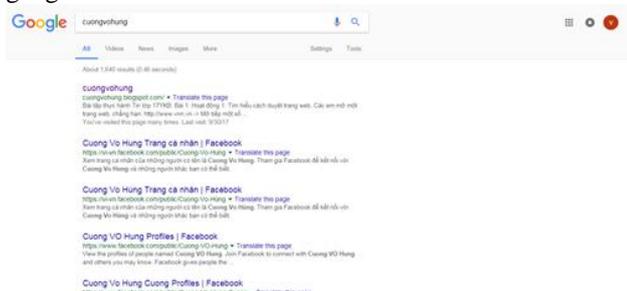

Figure 7. Search page of teacher on google

Step 2: Create a place to store lectures, documents, exercises

- The teacher will visit the website: www.google.com/drive/, then register for a free account or sign in with an existing email account.
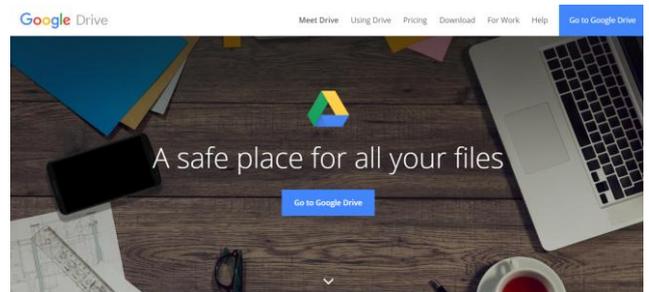

Figure 8. Google drive page

- Create directories and upload your files to Google Drive or create online documents directly through supported applications.
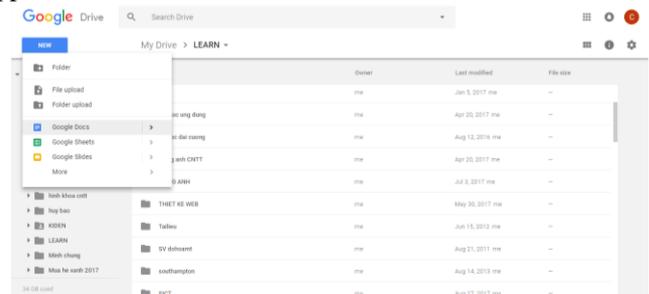

Figure 9. Create new folder or file

- Data sharing: Right-click on the file or folder you want to share and select "Share" or "Get shareable link."
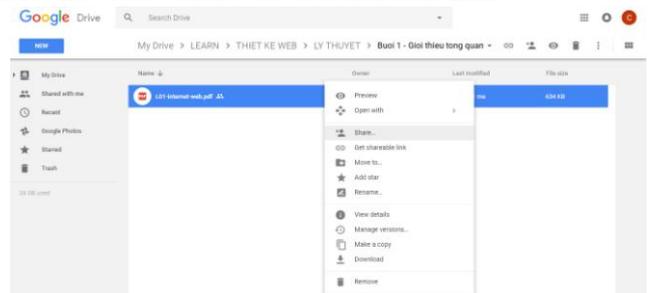

Figure 10. Share data

- Teachers will install data sharing properties that students who do not need to sign in will still be able to access.
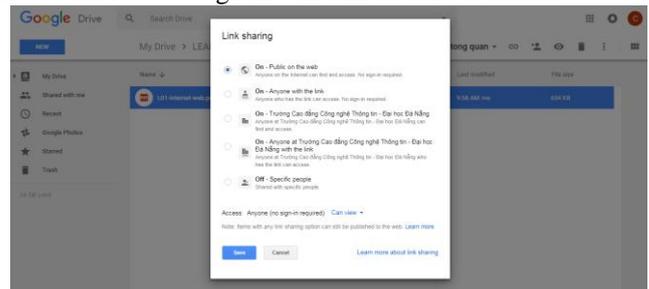

Figure 11. Public link setting

Step 3: Create submission system

- First, teachers need to visit www.Mediafire.com to register for an account, just select Free and you have 50GB of free storage [3].

Figure 12. Mediafire page

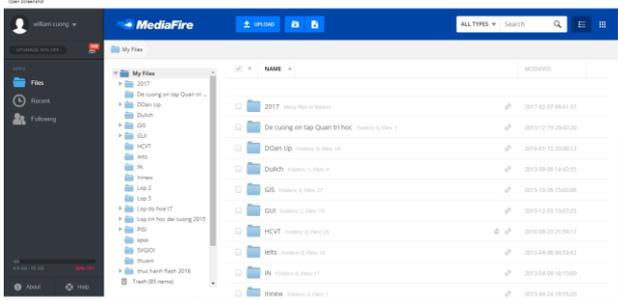- After logging in, the interface is as follows figure 13.

Figure 13. Management page

- To create a submission system, the File Drop function will be very good for this. First, the teacher will create a new folder. Then name your folder and, most importantly, select Make this folder a File Drop to create an assignment for students.
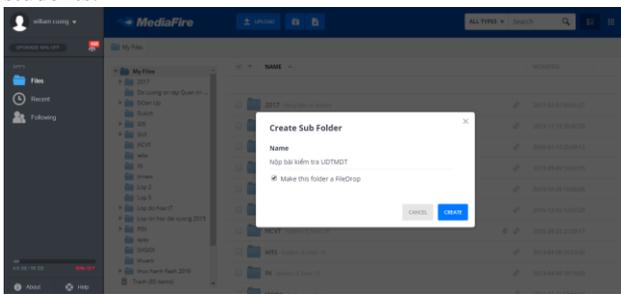

Figure 14. Create drop system

- After creating the submission folder, the teacher will move to the Deploy Your File Drop section to copy the path and share the student access to the submission.
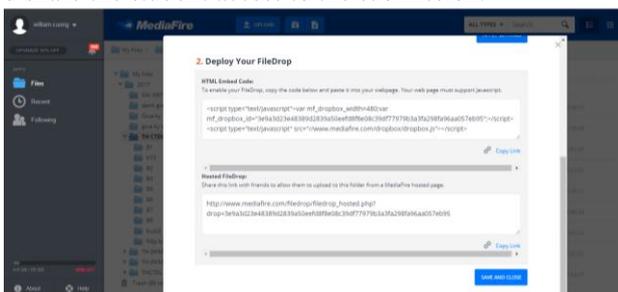

Figure 15. Share link drop file

- The online posting system is shown in Figure 16, where students upload their own over 200 types of files simply without having to do any login or conversion [9].

Figure 16. Drop file system

IV. CONCLUSION

In this paper, we recognize that cloud computing will be a powerful tool for building free applications that effectively support teaching in today's education. And it is clear that the cost of building a cloud-based system will be significantly reduced.

Along with the great support of these free online tools, teachers at all levels, not requiring high levels of computer science, programming skills, will also create a completely free website. Easy to support in teaching with students through free online tools achieve the following goals:

- Easy to operate
- All teachers can do it
- Satisfy the requirements of many subjects
- All are free
- No fear of data loss
- All data is secure
- Can be used any time, anywhere internet
- Support to share lessons, exercises within the classroom
- Interactive environment between teachers and students
- Online submission system

The system was experimented at the College of Information Technology - University of Da Nang - Vietnam, during two years from 2015 to present, with more than 20,000 visits of students to this website, the author has saved a lot of time and money. There are still some limitations because all applications are free, so some functions, storage space is limited.

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