A Proposed Model for Using Cloud Computing and Web2.0 in Deploying E-Learning Ecosystem (ELES)

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ABSTRACT

Research community has believed that an e-learning ecosystem is the next generation of e-learning but has faced challenges in optimizing resource allocations, dealing with dynamic demands on getting information and knowledge anywhere and anytime, handling rapid storage growth requirements, cost controlling and greater flexibility. So, flourish, growing, scalable, available, up to date and strong infrastructure e-learning ecosystems in a productive and cost effective way will be needed to face challenges and rapidly changing in learning environment. This paper work focused on an e-learning ecosystem (ELES) which supports new technologies is introduced and implemented. An integration between cloud computing and Web 2.0 technologies and services used to support the development of e-learning ecosystems. Cloud computing an adaptable technology for many of the universities with its dynamic scalability and usage of virtualized resources as a service through the Internet and Web 2.0 brings new instruments help building dynamic e-learning ecosystem on the web.

Keywords: Cloud Computing, Ecosystem, E-Learning, Microsoft Windows Azure, Virtual Community, Virtualization, Web 2.0

1. INTRODUCTION

Learning is not attained by chance; it must be sought for with ardor and attended to with diligence. (Abigail Adams, 1780)

People have been learning for ages; to eat one had to hunt, to feel relaxed sleepy, to stay alive avoid danger. One was obliged to learn to make his/her life easier or, even more, to survive! Our society of the 21st century makes great demands on its educators and students in making every part of their life virtual. Educators and students of the society must permanently keep pace with today’s changing situations, adjust their skills and expertise with agility,
collaborate and compete to provide value to society. It is well documented that our society is characterized by rapidly developing and ever changing political, social, economical, educational, technological and environmental situations (Gütl & Chang, 2008).

As a result, modern instructional design, learning goals and processes as well as appropriate learning environments must support these demands (Ebner, Holzinger & Maurer, 2007).

The need for e-learning is increasing constantly and the development and the improvement of the e-learning solutions is necessary. Also, the e-learning systems need to keep the pace with the technology (Pocatilu, Alecu, & Vetrici, 2010), so recently research community has believed that e-learning ecosystem is the next generation of e-learning (Dong, Zheng, Yang, Li, & Qiao, 2009) and the new direction is building and hosting e-educational system into the cloud.

Also, there are several tools that offer support for e-learning ecosystem among this tool web 2.0. During the last years, the nature of the Internet was constantly changing from a static environment to a highly dynamic environment that enables students to interact, collaborate. Web 2.0 as a term is closely associated with Tim O’Reilly is considered as a collection of web applications that reuse student generated content, initiate social interaction (Interaction typically occurs through discussion, commenting, collaborative writing and interactive information sharing with other students and educators) and enable collaborative functionalities based on more usable and convenient technologies such as Asynchronous JavaScript and XML (AJAX), JavaScript, Extensible Style sheet Language Transformations/Extensible Markup Language (XSLT/XML), Extensible Hypertext Markup Language (XHTML), Cascading Style Sheet (CSS), Document Object Model, Representational State Transfer (REST), “Rich Site Summary” or “Real Simple Syndication” (RSS), Atom, wikis, podcast, mashups and Social Bookmarking (Cormode, 2008).

Web 2.0 has changed the World Wide Web from the original traditional publishing model of information into a collaborative information creation model. Today students are extensive using some of the Web 2.0 applications such as Facebook, YouTube, Google Maps, Twitter, and Wikipedia to create and share information (Thanuskodi, 2010). Also, There is no doubt that the future belongs to the cloud computing. This new technological environment supports the creation of a new generation of e-learning ecosystem that is able to run on a wide range of hardware devices, while storing data inside the cloud (Ouf, Nasr & Helmy, 2010). Cloud computing is becoming an adaptable technology for many of the educational institutes with its dynamic scalability and usage of virtualized resources as a service through the Internet. It will likely have an important impact on the learning environment in the future. Today the educational institute can get Infrastructure as a Service (IaaS), Platform as a Service (PaaS) or Software as a Service (SaaS). There are elastic clouds where memory and processing power get allocated based on computing resources required at the time (Zhang, Cheng, & Boutaba, 2010). So, the aim of this paper is to investigate the adoption process of new technologies in educational institutes in situations of high complex environment, specifically uncertainty about external, internal, and technology factors surrounding the adoption of a new technology. This paper is organized as follows: Section 2 describes what the e-learning ecosystem can improve an e-learning. Section 3 focuses on cloud computing concepts and the benefits of cloud computing for education. Section 7 illustrates an enhanced e-learning ecosystem based on an integration between cloud computing and web 2.0.

2. E-LEARNING ECOSYSTEMS

The aim of this section is to summarize the complex situation for learning in environments of the 21st century by applying the ecosystem concept and identify high level requirements for the proposed flexible learning environment. Today’s educators have access to new technologies...
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