

Chapter 3.9

eLearning in the Cloud

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ABSTRACT

Elearning has grown rapidly in importance for institutions and has been largely facilitated through the “walled garden” of the virtual learning environment. Meanwhile many students are creating their own personal learning environments by combining the various Web 2.0 services they find most useful. Cloud computing offers new opportunities for institutions to provide dynamic and up-to-date Internet-based, e-learning applications while ensuring high levels of service, and compliance with institutional policies and legislation. The cloud is rapidly evolving in its architecture, the services offered and the logistics of deployment. It brings with it risks but also possibilities for learners and for educational institutions to reduce costs and enhance services. It is likely to severely disrupt the business model developed by existing vendors of VLEs who provide an integrated suite of e-learning tools, installed and maintained by the institution’s IT services department.

INTRODUCTION

Of increasing importance to educational institutions for managing elearning content and functionality are their virtual learning environments (VLEs), also known as learning management systems (LMSs). There is no single definition of a VLE and the systems themselves are continuously evolving and adopting new tools such as blogs and wikis as these emerge on the Internet. Some VLEs incorporate eportfolio functionality, for example, while others keep this outside the conceptual boundary of the VLE.

A major criticism levelled at VLEs is that they are not good at enabling the generation and storage of user-generated content or the fostering of social networks. Some educators bypass their institutional systems to avoid the restrictions placed on users. They find tools which are freely available on the Internet and provide more up-to-date, “fun” facilities for students to collaborate and to create, store and share their own content.

In the context of formal learning this is arguably only possible with small groups of students, facilitated by educators with high levels of IT skills. There are also many problems with every student building their own personal learning environment (PLE), particularly where the elearning elements of a course are collaborative or assessed.

One feature common to all VLEs (and not easy to replicate by piecing together various applications hosted elsewhere on the Internet) is the ability to provide specific content and functionality to closed groups of students who are taking a particular course for a defined period. This is necessary in the context of formal learning for a number of reasons as outlined in Sclater (2008). The institution may have invested substantially in the development of learning content and may feel that its market is threatened if it makes the content available freely to anyone on the Internet (though many universities report business benefits from their open content initiatives). Secondly, there are advantages to learning within a “walled garden” where a sense of community and common purpose can be developed with fellow students, keeping out spammers and disruptive users, which is particularly important if the learners are children. Thirdly, there are elements of the environment which the institution may wish to control for legal, ethical or business reasons such as accessibility for disabled learners, availability and robustness, security of personal data and branding. Finally, there are advantages in the institution owning user access data so that services and content can be enhanced, leading to a better learning experience and higher levels of student retention.

If the institutionally-hosted VLE is at one extreme of elearning provision and the personal learning environment comprised of multiple Web 2.0 sites controlled by the learner is at the other, a third potentially disruptive model has recently emerged. Two companies, Google and Microsoft, have begun to offer services to university staff and students which replace or complement functionality hosted by institutional systems such

as email, instant messaging, calendaring, the creation, storage, sharing of personal documents and Website creation. Google’s Apps for Education and Microsoft’s Live@edu systems package together a range of tools which can be customised and branded to some extent for institutions but are hosted externally by the companies in what has come to be known as “the cloud”.

THE CLOUD HOVERS OVER THE ELEARNING LANDSCAPE

Google’s cloud is a network made of perhaps a million cheap servers distributed in data centres across the World, storing numerous copies of the World Wide Web. This massive, distributed architecture makes searching extremely fast and provides a high degree of resilience, enabling individual servers to be replaced with faster machines after a few years with no impact on overall performance (Baker, 2007). Google and a few other companies with very large high speed distributed networks of computers, notably Microsoft and Amazon, realized that their computing resources were of value to other organisations and could be made available to them for a wide range of applications.

As with the term “VLE”, Cloud Computing has various definitions. Vaquero et al. (2009) examined more than twenty of them and proposed the following:

Clouds are a large pool of easily usable and accessible virtualized resources (such as hardware, development platforms and/or services). These resources can be dynamically re-configured to adjust to a variable load (scale), allowing also for an optimum resource utilization. This pool of resources is typically exploited by a pay-per-use model in which guarantees are offered by the Infrastructure Provider by means of customized SLAs. (p. 51)

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