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## AVU POLICY BRIEF

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### Publishing Content in the Cloud: opportunities and challenges

#### Issue at-hand

When distance education went online, content developers installed authoring tools on their desktop. A content authoring tool refers to a software package which can be used to create and offer learning content to users. The advent of Learning Management Systems (LMSs) resolved many problems since they could host multimedia-based learning content on one single platform. There was no longer need to have independent software offering independent facilities. Thus, LMSs offered options like e-mail, drop-boxes, forums, threaded conversations among others to keep teacher and learner connected. However, despite the reduced cost and increase scaling possibilities associated with LMSs, they still remained an expensive and almost inaccessible platform for providers of distance education. Typically LMSs were still hosted on desktops that had to be niched in expensive servers. Organizations had to control installation, storage as well as security. Cloud-based content authoring has changed this landscape.

#### What is cloud-based content authoring?

Cloud computing is “ a model for enabling ubiquitous, convenient on-demand network access to a shared pool of configurable computing resources, (e.g., networks, servers, storage, applications, and services) that can be rapidly provisioned and released with minimal management effort or service provider interaction” (Mell & Grance, 2011). Cloud computing offers the possibility of delivering software and computing services, as well as data storage on the Internet. It has extensive on-demand scalability. The advents of open source software (OSS) as well as open educational resources (OERs) have made cloud-based content authoring even more accessible and flexible. Any given desktop that has an internet connection can become a one-stop solution for authoring learning content with cloud computing.

***Policy recommendations (i) Governments should encourage the adoption of cloud-based open source software for their various advantages; especially their potential ubiquity and cost-effectiveness (ii) Training for staff involved in cloud-based content authoring should also be explored and provided for maximum benefits***

### **Advantages of using cloud computing**

Cloud computing has not only decreased the cost and worry of server maintenance, but it has also increased the potential of anybody joining the training bandwagon from anywhere. Its cost-efficiency is almost impossible to fathom. Licensing fees can be expensive for multiple users. With the cloud computing system, users can be added upon payment of reasonable fees. This significantly reduces the cost to any organization or university.

Clouds generally carry out regular system backups that enhance the security of content storage. This protects against accidental loss of content. Clouds also do not carry the traditional problem of hard drive crashes of PCs. There is therefore heightened security in terms of storage and loss.

With all data stored in the cloud, backing up and restoring is also easier. The content author can work almost autonomously. There is no need to have several assistants and content is more secure than on a classical server. The possibility of sharing content and media resources across projects is very attractive. Hence while mounting a course, it is easy to embed video streams from YouTube for instance. The only care that must be taken is that the resources used on the Cloud platform are appropriately licensed.

A cloud site can also be customized easily depending on organizational needs. For instance plugins can be purchased at minimal costs to accommodate the needs of the content, the author as well as the audience. There is no need to purchase expensive LMSs which may carry options that are never used. Like building blocks, the cloud-based LMS can have several add-ons based on organizational or audience requirements.

The cloud typically allows for collaborative work. During course development, while desktop-based applications usually allow only one user to work on a project at a time, with the cloud computing approach, several collaborators can intervene simultaneously to solve problems- whether one given problem or work on several distinct problems at a time. This stands to improve productivity, efficiency and effectiveness.

Collaborators working synchronously or asynchronously can be from one location or can be geographically dispersed when files reside on a cloud. In addition, re-using and re-purposing content becomes easy. Not only does the cloud backup system enable easy retrieval of course content and activities that can be used by several collaborators in different courses, it also enables tracking of these different activities.

### **Disadvantages of cloud content authoring**

It goes without saying that there are also some inconveniences associated with cloud content authoring. Despite the fact that contents on a cloud can be almost ubiquitous, there are always issues beyond human control when it comes to technology. Outages and other technical breakdowns, especially due to bandwidth and connectivity problems are known to all users.

However this does not necessarily compromise security of data storage. Despite the fact that data stored in clouds are in secure, users must be aware that there are always dangers in uploading learning content onto third-party service provider. Those that provide corporate training on cloud systems from should realize that there are always hacking possibilities and they should add additional layers of security with regard to sensitive information.

### **Choosing a cloud-based LMS**

Among known cloud service providers are the following. Amazon, Akamai, IBM, Enki Consulting, Rackspace, Verizon, Linode, Microsoft, Salesforce and Google. Cloud content authoring has become an increasingly attractive option for workplace learning as well as for traditional distance education providers like universities. Both open source and proprietary software have migrated to cloud solutions.

When choosing an LMS, institutions inevitable ask the question: which is the better option – a free open-source software or an expensive software that carries integrated solutions and are stable. Usually, price and site user-friendliness dominate the choice. While there are many providers, this brief will focus on the two most popular ones: Moodle and Blackboard. Moodle is a free LMS. Its 3.3 version is very versatile and carries many options that belong to Blackboard. Blackboard on the other hand is a proprietary software but is very popular among many educational institutions. Both LMSs have migrated to the cloud mode. This move has made Moodle even more accessible and has waived the cumbersome need to host it on an expensive server. Blackboard also benefits from the collaborative possibilities of the cloud but remains a fee-paying option.

### **Cloud content authoring**

The advantages of the cloud content authoring options easily offset the disadvantages. Each institution that wishes to engage in the provision of online distance education should explore the advantages of adopting cloud-based solutions. They will be surely interested in the way that time can easily be saved, learning content edited online with minimal effort, supplementing video and audio content can be added onto instructional materials straight from repositories (especially facilitated if they are licensed on creative commons), colleagues can intervene

collaboratively and users can access from almost anywhere. Some cloud based LMSs are even developing mobile applications that can be installed on mobile devices, thus further decreasing the access barrier (Wang *et al*, 2014).

The several benefits dictate a move to cloud-based solutions. Institutions may wish to explore using proprietary software that often come with on-demand maintenance service. Maintenance for cloud-based open source software is carried out on forums and for Moodle, answers are usually provided via Moodle.org. Some patience is required before solutions are available. With regard to cloud-based proprietary software, answers to problems are provided more readily. However the benefits of being able to operate from a cloud as well as the sheer cost-effectiveness of Moodle make it undeniably attractive and possibly a solution for African institutions that want to provide effective online distance education.

### Final words

It is important for a teaching institution to decide which cloud based LMS it will adopt. Once the choice between a proprietary or open source LMS is made, training of staff, especially instructional designers is also necessary to effectively tease out all the benefits of the LMSs. The reduced cost of cloud-based LMSs will be further reduced with staff ability and skill to equally free plug-ins (for instance those that offer audio-visual support) that will enhance provision on the LMS. Therefore, it is vitally necessary to have the appropriate training available to those practitioners that design and develop online learning content.

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Tel: +254 20 2528333; +254 20 3861458/59

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Research & Development Unit at [submissions@avu.org](mailto:submissions@avu.org)