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Identifying the role of cloud computing technology in management of educational institutions

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ABSTRACT

Cloud computing refers to a computer architecture that offers universal on-demand network access to a shared pool of configurable resources. Educational institutions are essential because they play a vital role in policy formulation and contribute to cultural, political, and social growth. Cloud computing is highly popular throughout the IT sector worldwide, and its importance and excitement is also expanding in educational institutions if IT demands. There is currently little information available on the use of cloud computing in educational institutions. Organizations can use cloud computing to decrease IT costs while also gaining more flexibility and scalability; nevertheless, the sustainability of many cloud computing services remains to be seen. Measures to address security, privacy, and legal concerns, as well as the standardization of cloud technology, are still in the works. This article discusses the importance of cloud computing technologies in educational institution management. This also presents a number of problems in terms of cloud computing adoption in educational institutions.

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1. Introduction

The notion of cloud computing [1] emerged in the 1950s with the advent of mainframe computers. Multiple users were permitted to access a central computer through dumb terminals, the primary purpose of which was to give access to the mainframe. It was not possible for a business to give mainframe computers to every employee due to the large cost needed. Neither did the requirement for such great capacity storage and high speed processing for a typical user, which mainframe computers provide. The most cost-effective approach for this advanced technology was to provide shared access to a single resource. The concept of virtual machines (VMs) emerged in the 1970s with the advent of virtualization software such as VMware, which allowed one or more operating systems to run concurrently in an isolated environment. A virtual computer can run within one piece of actual hardware, which can then run an entirely other operating system.

Amazon.com proved that it would overcome the collapse of the dot-com bubble in the first few years of the 2000s, shortly after Salesforce.com introduced this unique notion to the attention of

the world. Amazon was the first big company to upgrade its data centres, which only operated at around 10 percent capacity one time. Amazon understood that it could use its current capacity far more effectively with the new cloud computing infrastructure design [2].

In the meanwhile, Google had become a key participant in the Internet trade industry by the late 2000s. Google Docs offered directly to end users the capability of cloud and document sharing in 2006. The 2008 'Emerging Technologies Conference' of Gartner Inc. reports that 80% of Fortune 1000 companies is currently planning for cloud computing and 30% will pay for cloud computing infrastructure [3].

KPMG's 2010 poll also indicated in favor of this. "While cloud computing allows organizations to decrease IT costs while increasing flexibility and scalability, the sustainability of many cloud computing services remains to be proven. Measures to address security, privacy, and legal concerns, as well as cloud technology standards, are still in the early stages." [4].

Gartner estimated cloud computing to be extremely popular in the IT sector throughout the world, while its relevance and excitement are also increasing in the field of IT requirements in educa-

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