

**MULTIMEDIA UNIVERSITY OF KENYA**

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**ADM. NO:** BUS-242-063/2014

**COURSE:** BACHELOR OF BUSINESS INFORMATION TECHNOLOGY

**UNIT:** CLOUD COMPUTING

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**ASSIGNMENT:** IMPLEMENTATION OF CLOUD COMPUTING IN ECOMMERCE

**Introduction**

Nowadays, the power of cloud computing has transformed the e-commerce industry. The growing of IT innovation has made the business enterprises to make a decision regarding adoption of advanced technology to solve the organization’s computing requirements, to support their services, products and to satisfy their business operation need to create a large infrastructure of Information technology and resources employment. One of these technologies is Cloud computing. The cloud can give access to the business organizations in general and specifically for small and medium enterprises. These Privileges includes cost saving, availability, services, security and resources etc. Cloud computing concept has been discussed widely and has been implemented by many enterprises. Among the reasons claimed are the flexibility and efficiency that become a must for business enterprises to do business. Electronic commerce (E-commerce) in small and medium enterprises (SME’s) nowadays become eminent and most of the enterprises facilitated the E-commerce to earn profits, but these SME’s have faced several issues and challenges with respect to security, big data, cost of implementation and cost saving, high performance of services and infrastructure facilities etc. Cloud computing technology can solve many problems which are faced by the Small and medium enterprises by giving them high performance of services, infrastructure, cost saving and security of business.

**Definition**

[Cloud computing](http://www.whitehatvirtual.com/professional-it-services/cloud-services-austin-dallas-houston-san-antonio-texas/) is using the Internet to deliver hardware and software services instead of keeping physical hardware and software at your office. According to the National Institute of Standards and Technology (NIST): 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.

E-commerce is the process of buying, selling, distributing, marketing of products, services, and information that can be accessed through an electronic system using computer networks to perform business communications and commercial transactions such as the Internet or other computer networks.

**Implementation of cloud computing in e-commerce**

According to the NIST cloud computing service models is divided into three models. Software as a service (SaaS), Infrastructure as a service (IaaS) and Platform as a Service (PaaS). All this different types of cloud computing service models can be used in e-commerce in Africa. SaaS can be used for example by using storage media contained in the cloud for storing the company data archives, or by using application that is provided to manage customer relationship (CRM) without having to do the installation. In Africa, the use of SaaS services for SMEs or enterprise, may not have many problems because many SaaS services which free or paid can be accessed easily on the Internet network. A modern SaaS platform is managed by a professional and experienced organization, dedicated to ensuring your online store is always up and performing at top speed. They work hard to ensure a consistent and quality user experience for your customers and to [reduce potential pain points for your ecommerce business](https://www.bigcommerce.com/blog/common-ecommerce-pain-points-reducing-business-efficiency-and-roi/).

Platform-as-a-Service (PaaS) solutions are becoming an increasingly popular option. They allow businesses to introduce new features on an as-needed basis, update functionality without starting over, and are designed to customize to various customers and internal requirements. They are flexible and changes are quick to deploy. Its main benefits are customization to user specifications and easy integration making it much preferable in Africa.

There are several deployment methods that can be used in an organization. The may include, public cloud, private cloud, community cloud and hybrid cloud. E-commerce is a conduct of business over the internet hence most of the operations happens over the internet. Public deployment method would be of great benefit because the cloud service provider utilizes the resources provided by the public internet, so services are fairly provisioned and public cloud is typically cheaper than other deployment methods since it’s billed on a per-use basis.

**Benefits of cloud computing to e-commerce**

**Cost**  
Cost is mainly one of the primary reasons for moving a business application or data center to the cloud. While there may be a low cost associated with developing and deploying an e-commerce application, the parallel need for hardware and bandwidth may turn out to be expensive. The facility of paying per use enables to consume the services according to your requirement. As the business grows you don’t need to invest in hardware or software infrastructure. A cloud based initiative on a virtualized server may save a company 80% of the costs normally associated with a traditional e-commerce roll out.

**Speed**

For an [e-commerce](https://www.newgenapps.com/blog/6-advantages-why-does-outsourcing-in-ecommerce-help) business, speed plays an important role to make the customers stay glued. A study found out that [40](https://blog.kissmetrics.com/loading-time/)% of customers abandon a web page if it takes more than three seconds to load. A company may also be able to roll out an e-commerce application five times faster than before and begin selling immediately on the remote platform.

**Scalability**  
Commonly referred to as elastic, Cloud Computing enables an e-commerce application to cater to the changing demand and scenarios of the market. It allows to upscale or downscale the services according to the demand, traffic, seasonal spikes and those triggered by special promotions.

**Security**  
Securing applications, physical facilities and networks is a critical consideration.  Many cloud vendors complete third-party certification, including ISO 27001. Further security measures are implemented at the application, facility and network levels including data encryption, biometric screening of personnel and certification through third-party vulnerability assessment programs.

**Redundancy in Cloud Services**

Cloud-based architectures are disaster tolerant. A cloud-based platform with built-in redundancy can save the business from data loss as it keeps the data secure, backed-up and easily accessible. An e-commerce business depends hugely on the data of its customers. At the time of catastrophic data losses or security threats, redundancy helps to overcome the disaster and resume the business in a streamlined way.

**Challenges of cloud computing adoption in e-commerce**

**Data Storage**

Users of business-based Cloud services worry about their inability to control the place where the data is stored how it is replicated, partitioned and distributed. This lack of control makes clients wary of the policies and procedures in use.

**Security**

It is a major problem especially when data is created and processed on the cloud. It is hard to get efficient and economic solutions to protect data and programs from attacks. An intruder can interrupt a connection between e-commerce enterprises and their customers. Moreover, the data may be exposed, accessed, modified or even destroyed while in transit or during processing.

**Service standards issues**

Cloud service providers do not provide enterprises with specific details about the infrastructure and services used. Information on location, technology used, staff situation, mode of operations for example are not communicated to the clients. Clients who wish to use such services may be hesitant to do so without knowing this information.

**Dependence on connectivity**

Access to resources or shared information or even hardware, the end-user must be connected to Internet. Being tethered to the availability of network connections may be problematic when such connections are not reliable.

**Conclusion and recommendation**

Cloud computing offers the platform for the new generation of e-commerce systems where the providers will rely on cloud service providers to satisfy their technical needs to implement and operate successful and trusted e-commerce applications. The cloud will add value for the enterprise and solve the problem of the high cost of owning and operating IT solutions to support their e-commerce applications or the high cost and uncertainty of outsourcing these applications to a third party. The adoption of cloud computing in E-commerce may pose some challenges that have been identified such as security, service standard issues, dependency on connectivity and data storage. These may make it hard for some organizations to adopt cloud computing. Since the current world is turning digital in all aspects, I would recommend the full adoption of cloud computing in e-commerce as it has many benefits now and in the future.

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