



# OUTSOURCING RECORDS STORAGE TO THE CLOUD : CHALLENGES AND PROSPECTS FOR AFRICAN RECORDS MANAGERS AND ARCHIVISTS

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# HIGHLIGHTS

- Understanding the cloud.
- Rationale for storing records in the cloud
- Cloud storage: Global and African Perspective
- Benefits of cloud records storage
- Risks associated with clouds records storage
- Considerations for records managers overseeing transition to cloud records storage.

# Paradigm shift

- Cloud document management systems



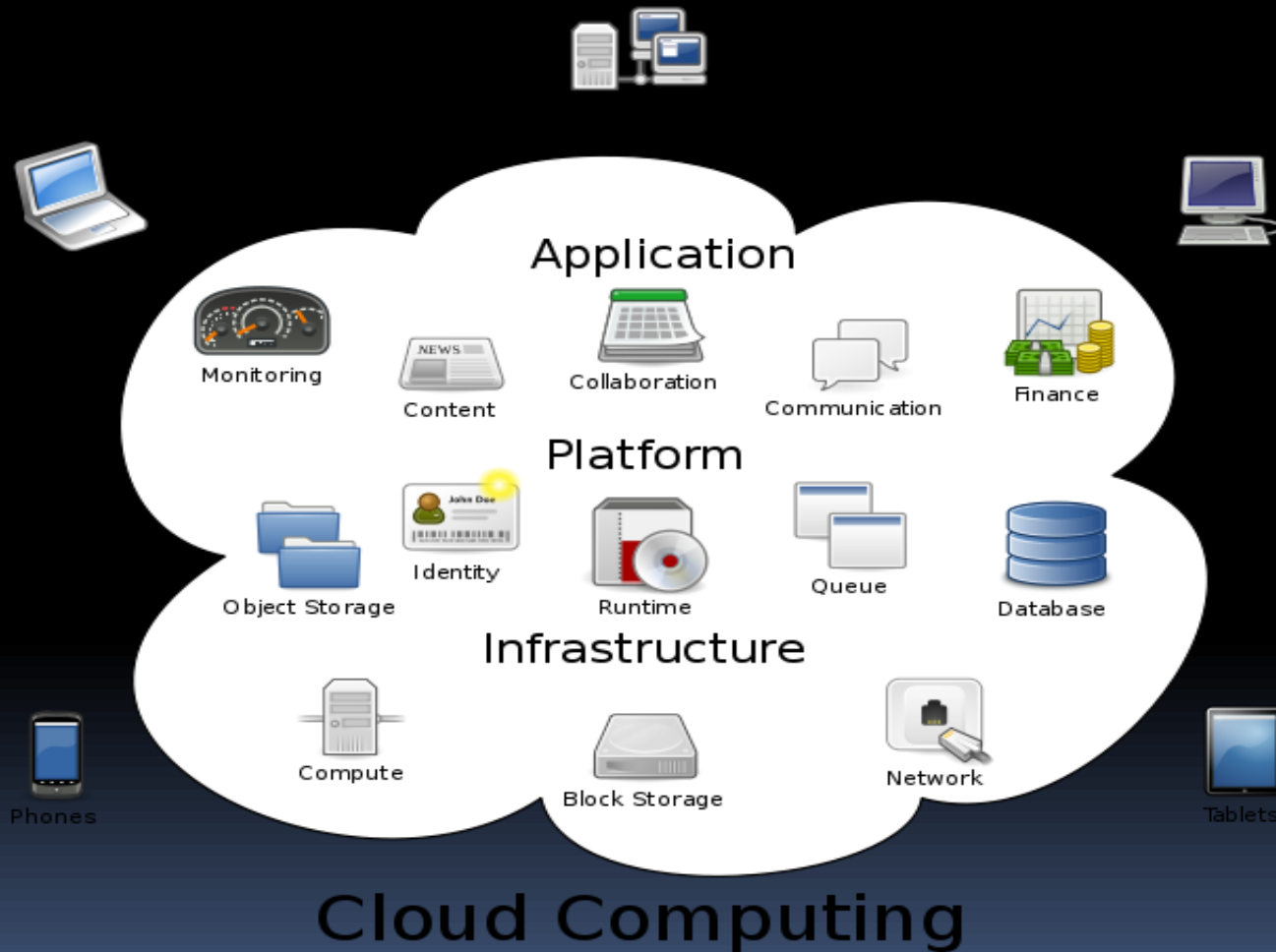
- On-premise records management systems

By 2020, 15 % of the information in the digital universe will be part of a cloud service. (IDC)

# The Cloud

- Cloud computing is a form of distributed storage that involves shared hardware or several virtual machines running on a physical machine. Computing and storage space are delivered as a service to heterogeneous community of endusers.
- An organisation or individual may be served data from several to hundreds of independent data nodes, and each node may be shared between several clients. This means the data is “in the clouds” rather than a known location such as a hard drive or an organisational network.
- The customer is able to access a pool of computing resources which is owned and maintained by a third party via the internet. These resources include; hardware, software applications, storage space, Computing power.

# Cloud computing logical diagram



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- A form of computing that enables organizations to store and process their data online without having to run their own computer platforms.
- Therefore, Cloud computing is not a new technology but a new way of delivering computing resources based on long existing technologies such as server virtualization.
- Virtualization is a computing technology that enables a single user to access multiple physical devices.

# Key characteristics of cloud computing

**1. On Demand, Self-Service-Services** are available to end users on an “on demand” and self service basis.

**2. Pay As You Use, Metered Consumption**

Consumers pay on a “utility” basis, exactly for what they use.



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3. **Rapid Elasticity/Scalability:** Capacity can be scaled up or down dynamically and immediately.
4. **Shared Pools:** Seamless integration of computing, storage, and other infrastructure resources to create a “Virtual” resource pool, which creates the illusion of an infinite resource pool.



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5. **Broad Network Access:** Access to services is available through public and/or private network through any network enabled device – desktops, notebooks, tablets, and mobile phones.

Cloud deployment models-

Public, Private, Community and Hybrid.

# Why cloud record storage?

- Large volume of information is being created in day to day business and personal life using many different applications and systems- emails, videos, blogs (digital deluge)
- Storing this information in organisations hard drives and networks has become expensive.
- Software for creating data is expensive and carries other costs such as licences per employee , maintainance, regular upgrades.

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- Storage space- Requires maintainance, Obsolescence, protection from malware and other forms of corruption.
- **Records storage in the cloud takes two forms;**
  - Virtualized data storage where the internet itself serves as storage space -additional storage space to cover peak workloads or for disaster recovery purposes.
  - Data stored in physical servers stored in located disparate geographical locations. (backup).

# Cloud records storage: Global perspective


- United Kingdom: The government has created a government wide cloud computing network known as G-cloud. A small number of virtualized data centers would be accredited “public cloud” service providers to help reduce public sector spending on ICT.
- Japan: National government is undertaking a major cloud computing initiative dubbed Kasumigaseki cloud. It seeks to develop a private cloud environment that would eventually host all government departments.

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- Thailand: Government information Technology service (GITS) is establishing a private cloud for use by Thai government agencies
- China: City of Dongying in the northern region is undertaking cloud computing initiative –The yellow River delta cloud computing.
- Asia Cloud Forum.
- Africa- Upcoming cloud service providers E.g. Biashara Cloud in Kenya.

# Benefits of storing records in the cloud

1. **Cost Savings:** The biggest catch-phrase associated with clouds – "you pay for only what you use". It allows customers to consume IT more efficiently and allocate resources, with a predictable monthly OPEX.(operating expenditure)
2. **Focus on Core Competency:** By allowing the IT team to focus on more important issues than patching software and upgrading hardware, cloud ensures the customers are focused on strategic tasks.
3. **Universal Resource Access:** As the ICT resources are entirely centralized, there is complete independence of location, device, and network. ICT resources can be accessed anytime, anywhere, and by any device using any kind of connectivity

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4. Automation of IT: IT becomes a utility much akin to electricity – "pay as you use", "always available", and "highly automated. Re-categorisation of storage space and software from assets to operating expenses.
  5. Increased reliability-cloud offers large computing resources, ability to switch to a different server in case of an outage.
  6. Enhanced protection against data loss-physical devices can get damaged. Cloud providers perform backup of cloud content regularly.

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7. Scalability –computing power and storage space can be scaled up or down depending on demand. Cloud is responsive to business cycles.
8. Enhanced collaboration-cloud offers a single repository allowing sharing of information. Geographically dispersed organizations can collaborate and share data.



# Risks of storing records in the cloud

1. Unreliable cloud providers-When a provider goes out of business or is acquired by a competitor. Services be subject to changes or may be unavailable.
2. Loss of governance –records management responsibilities are transferred from the organization to the cloud provider. Exact location of records is unknown-authenticity and integrity of records is compromised.

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3. Records security is compromised-availling business records in internet exposes an organization to identity theft, hacking.

The integrity, authenticity, reliability and confidentiality of a record rests on the ability to demonstrate that it has not been tampered with or been accessed by unauthorised persons. Many Cloud providers lack robust logging and audit controls.



In a cloud environment records are exposed to security risks such as;

- Unauthorised access by malicious insider at the cloud provider.
- Interception while in transit over an unsecured network.
- Being commingled with information of other customers in a multi-tenant environment.
- Being accessed while processed in unencrypted state.
- Remnance when it has only nominally been removed from hard drives.

## 4. Lack of open standards and interoperability

- The cloud computing market is still emerging and service providers sometimes use different proprietary interfaces and programming languages. The lack of standardised interfaces and procedures can make it difficult or expensive to transfer services or records from one cloud provider to another.
- Lack of standardization is also a problem when organisations want to outsource and combine services to a range of cloud providers to achieve maximum efficiencies and flexibility or when trying to get their in-house systems to interact with the cloud provider's systems

## 5. Non-compliance with legal requirements

- In a cloud environment an organisation's records may be stored across various countries in which the provider operates data centers.
- This raises the issue of uncontrolled trans-jurisdiction data flow and the differing legal requirements related to different geographic locations.
- Records stored in the cloud in different jurisdictions, could be subject to disclosure or seizures particularly if they are stored in data centres in high-risk countries with unpredictable legal practices. (e.g Provisions of the Patriot Act in the U.S.A)

# Factors that records managers need consider before transitioning to the Cloud

1. Category of records-Business-critical processes as well as highly sensitive, confidential information should not be transferred to the cloud.
2. Choice of cloud service models –private,public hybrid.
3. Risk analysis and assessment -a records manager needs to Identify, analyze and develop a response to the security and governance risks associated with moving processes, applications and records to the cloud.

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- The main factors when assessing the risk associated with a particular cloud service and deployment model are;
  - the compliance environment in which the organisation operates.
  - the total cost of setting up and using the cloud service.
  - the ability to audit and monitor the provider's service and security processes.
  - the organisation's risk strategy

## 4. Records management

- The organisation needs to ensure that policies and procedures surrounding the management of the whole life-cycle of records are administered and validated for records stored in the cloud. The main aspects of managing records i.e classification, appraisal and disposal of records should be adhered to maintain their authenticity, reliability and integrity over time and to ensure that they are accessible and retrievable for legal and regulatory compliance.
- A records manager should establish relevant metadata schemes to ensure enough contextual information is captured for the use, management and retrieval of records stored in the cloud.



## 5. Legal and regulatory compliance

- The records manager should determine which legislations and regulations on records keeping the organisation is subject to and how storage and processing of records in the cloud will impact compliance with legal and regulatory requirements.
- Compliance to certification and industry standards such as ISO9000 can be adversely affected by moving information to the cloud because these standards were not designed to apply to cloud services as they often require the information owner to be able to point to its physical location which can be difficult to achieve.

## 6. Contract /Service Level Agreement

- Public sector institutions have specific purchasing frameworks that ensure that services are purchased according to correct procedures. These frameworks might cover traditional outsourcing contracts and agreements well but not cloud computing contract.
- The records manager in liaison with the procurement manager therefore needs to ensure that any additional contractual requirements are identified and specified within the cloud contract or agreement.

## 7. Return on Investment

- Cloud computing can save cost through the reduction of capital expenditure for hardware and software as well as through a reduction in staff time for systems set up and maintenance. However, the true costs of cloud computing are sometimes difficult to establish.
- The records manager and IT manager needs to take into consideration both running and conversion costs over time to establish how much return on investment a move to storing records in the cloud can generate and whether it is viable for the organisation to move to the cloud than building its own data centre.

## 8. Information retrieval and disposal exit strategy

The outsourcing strategy should specify how records will be retrieved from the cloud provider infrastructure once the contract is finished. This should include agreement on;

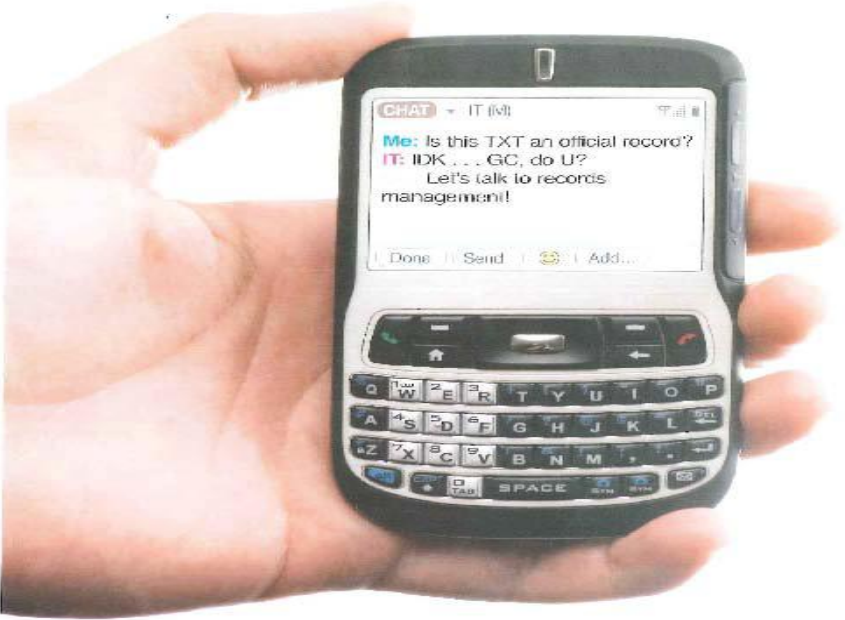
- Any cost associated with the records extraction process.
- The format in which records will be exported.
- The timeframes in which export is taking place.

The exit strategy must ensure that no record is lost or its integrity compromised and responsibilities need to be clearly assigned between provider and customer.

# Conclusion

- As cloud records storage gains momentum IT executives and records managers must decide if the cost savings and scalability to be gained through shifting data and functions to the cloud are worth the trade-off in terms of control and security. More importantly, records managers now more than ever need to be involved in the decision to use web technologies in the business place.
- The decision to use these technologies should be a risk based decision and approached with all the due diligence of any other form of distributed storage contract.

# Thank You




A hand holding a mobile phone displaying a text message conversation. The screen shows a chat window titled "CHAT - IT (4)" with the following text:

**Me:** Is this TXT an official record?  
**IT:** IDK... GC, do U?  
Let's talk to records management!

Below the text is a "Done" button, a "Send" button, a smiley face icon, and an "Add..." button. The phone has a full QWERTY keyboard.

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