

ASSESSMENT 2

REPORT ON CLOUD-BASED DATABASES FOR MUSEUMS

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INTRODUCTION

Cloud computing is an internet based model that facilitates access to a pool of shared computing resources that can be configured (e.g. services, networks, servers, applications and storage)(Pourabbas, 2014). Using cloud computing platforms, access to IT infrastructure such as storage, servers and databases can be expanded and made available as IT services to the general public(Gong et al., 2010). There are three service models of cloud computing. Software as a Service (SaaS) in which software applications are made available to the user (Pourabbas, 2014); Platform as a Service (PaaS) where users are provided with a platform for application design, development, testing and deployment (Pourabbas, 2014); Infrastructure as a service (IaaS) in which computing hardware such as memory, processors, storage is offered as a service (Pourabbas, 2014).

There are four deployment models for cloud computing. They are:

1. Private Cloud: it is to be used exclusively by a single organisation and might be owned, managed and operated by them or a third party(Mell & Grance, 2011).
2. Community Cloud: the cloud infrastructure is used by a specific community of consumers from organisations that have shared concerns (Mell & Grance, 2011).
3. Public Cloud: for use by the general public and may be owned or managed by a government organization, business or academic institution(Mell & Grance, 2011).
4. Hybrid cloud: is a combination of the previously mentioned deployment models(Pourabbas, 2014).

CLOUD DATABASES

A cloud database is built, deployed and accessed in a public, private or hybrid cloud environment (*What Is a Cloud Database? | Oracle*, n.d.). A cloud database can be either a traditional database running on a cloud virtual machine and managed by IT staff of the organisation, or a cloud Database as a Service(DBaaS)(*What Is a Cloud Database? | MongoDB*, n.d.). A traditional cloud database is similar to an in house managed database but running in the cloud on infrastructure purchased from a cloud service provider (*What Is a Cloud Database? | Oracle*, n.d.). However DBaaS is provisioned as a fee based subscription service and includes automated backups, patches,

security, scaling etc along with fully outsourced database management instead of employing in-house database professionals(*What Is a Cloud Database?* / Oracle, n.d.).

Thus, if the museum organisers wish to develop a cloud-based database which includes geographical information, they would first need to choose a cloud vendor which provides a scalable IaaS, PaaS, or DBaaS that enables convenient migration of their spatial data. They would also need to consider advantages and disadvantages of the various vendors such as Microsoft Azure, Amazon Web Services (AWS) Elastic Compute Cloud (EC2) or Google Cloud in terms of features and support.

BENEFITS OF CLOUD COMPUTING PLATFORMS

Scalability: Cloud database services scale to handle increasing load and growth of data to maintain and enhance performance. As the volume of data being gathered from the museums begins to increase, cloud resources (such as memory, storage or processing power) must be increased to meet demands. Different cloud services have different limitation in case of Scalability while optimizing other factors like cost effectiveness, speed of access and scale of access.

Reliability: Cloud databases are designed to always remain online. They are replicated and often have several backups available(*What Is a Cloud Database?* / MongoDB, n.d.).

RECOMMENDATION

We believe the museum organisers should consider cloud databases because of the increased convenience, power and availability they provide towards enhancing service delivery. The organisers should consider their future needs as well as present needs because their database would need to be relevant as new technologies arise and new ways of interacting with museums emerge. On premises systems will be more difficult to maintain but the cloud providers will always adapt to ensure that data remains secure and quickly accessible. This unified system will also ease the various museum's burden of maintaining on premises database infrastructure and constantly applying patches and security updates.

References

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