MASTER'S PROJECT (SPRING 2013)

TOPIC: *Prototyping a Reliable Cloud-Based Storage System Using Amazon Web Services*

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ABSTRACT

Cloud computing has enabled users to access scalable and powerful Internet based computing platforms without the need of large initial investments. With cloud computing, small companies can concentrate on their business logic, data and the services rather than the underlying infrastructures and their associated cost. However, the main concerns with the cloud computing are data security, data reliability, and data availability. In this project, we adopt a security mechanism that minimizes the concerns using secure and fault-tolerant cloud-based information storage. The security mechanism utilizes multiple cloud service providers as a virtual cloud cluster for data storage. Each set of data, composed of the user's sensitive information can be split into multiple pieces and stored into the cloud cluster after they are encrypted. Due to data redundancy, the approach ensures that the failure or compromise of an individual cloud provider in a cloud cluster will not result in a compromise of the overall data set. To demonstrate the feasibility of this approach, we developed a prototype system that could be used to reliably store sensitive data such as confidential personal data in the cloud. We used Amazon Web Services (AWS) instances to simulate multiple service providers and relational database Amazon-RDS for data storage. The prototype shows that that data security, reliability and availability of the stored data in the cloud can be effectively ensured using our approach.