

## **A New Dimension in HRM: Cloud Computing**

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**ABSTRACT:** *Cloud computing is the new buzz word among individuals, research scholars, and corporate. Cloud computing is a pool of abstract, extremely scalable, and managed infrastructure that is proficient in hosting customer applications as well as is billed as per consumption. This computing model has been perceived as key factor for gaining competitive advantage as well as sustainability in globalized marketplace. Further, human resource managers are also using cloud computing technologies for their day-to-day operations, like searching resumes, tracking applications, creating mobile human capital, enhancing flexibility, monitoring performance, quick decision-making, and others. On the other side, some of the challenges that arise while reaping the benefits of cloud computing are privacy issue, security issue, misuse of data, and data loss. Implementation of adequate authorization, validation, monitoring, applying filters, and others could help in overcoming the challenges of cloud computing, and achieve long-run sustainability in global market place. Thus, collaboration of HR and cloud computing model will help in the enhancing the performance, innovativeness, and intellectual capital of an organization.*

**KEYWORDS:** *challenges, cloud computing, HRM, opportunities.*

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### **I. INTRODUCTION**

Cloud computing has emerged as an exciting paradigm that has grab considerable attention of market as well as academic world (IEEE, 2009). Cloud computing is among the current “top ten” concerns that are identified by the industry analysts (Preston, 2011). This wide popularity of cloud computing has resulted in significant involvement of individual as well as commercial players, like: Microsoft, Amazon, Google, and other (Jaeger, Lin, and Grimes, 2009). Additionally, the top database manufacturers are also fostering cloud support features in their databases to align their product with the latest technology. Earlier, organization uses in-house servers and other resources for computing purposes. This method was costly and rigid in nature, as it was difficult to instantly expand or reduce the computing resources as per individual’s need. Today, cloud computing has helped individuals as well as organizations to use pool of computing resources as per their need. It can be said that cloud computing is technological improvement of the data centres as well as the way information technology is used within the organization. This paper intends to presents meaning of cloud computing; cloud computing and HRM; opportunities as well as challenges of cloud computing; and suggesting ways through which cloud computing can be best used to achieve sustainability. Thus, this paper will help in providing snapshot of current research work done on cloud computing as well as stimulating the interest among scholars for conducting further research in this area.

### **II. DEFINITION OF CLOUD COMPUTING**

Now a days, cloud computing is used by many organizations for enhancing their profitability as well as sustainability. In the era of technological revolution, computing power of an organization is perceived as key for generating competitive advantage (Liu &Orban, 2008). Cloud computing model fosters opportunity to store and process data of individuals, enterprises or organizations on a remotely situated unknown machine that is not known to the users. Cloud computing is a pool of abstract, extremely scalable, and managed infrastructure that is proficient in hosting customer applications as well as is billed as per consumption (Staten, 2008). The cloud computing service models can be divided as (Mell and Grance, 2009):

- SaaS (Cloud Software is served as Service) – consumer in this service model does not control the management of cloud infrastructure, but only uses applications that are provided by the service provider on cloud infrastructure.
- PaaS (Cloud Platform as Service) – in case this cloud model, user has the facility to manage as well as control the applications as well as related configuration of the hosting environment.
- IaaS (Cloud Infrastructure as Service) – in case of IaaS service model, user has complete access to service provider’s infrastructure, including storage, networks, operation systems, and others.

On the basis of relationship between the consumer and the service provider, clouds in cloud computing can be divided as public (general public has accessibility to the resources fostered by the service provider's cloud); private (one organization is allowed to use the cloud resources that are fostered by cloud infrastructure); community (cloud infrastructure is shared by various organizations that are having shared concerns); and hybrid clouds (combination of two or more clouds, where each cloud has individual identity and yet they are connected to foster application as well as data portability) (Mell and Grance, 2009).

### **III. CLOUD COMPUTING AND HRM**

Cloud computing has also been introduced in the field of human resource management for achieving innovative solutions for organization's sustainability. Normally, human resources of an organization are located in diversified location, and this leads to communication gap that may be related to communicating with the team members or inefficiency in timely access of required information, or monitoring of the uploaded information by the other departments of the organizations. All these issues results in inefficiency in data processing, slow decision-making, inability in responding to external challenges instantly, and others. The above mentioned gap can be fulfilled with the help of cloud applications as the data can be stored at central location – "the cloud". The centrally located data and information is helpful for the organization as clouds fosters ease for HR professionals to search resume, track applications, create mobile workforce, monitor performance, generate reports, enhance flexibility, fosters two-way interaction, and enhance effectiveness of the department. Apart from the above benefits, cloud computing technology does not call for additional expenses on infrastructure and maintenance. This is possible as the customers of cloud computing system uses software and computing resources (network, software, and hardware) that are fostered by the cloud service providers. Furthermore, cloud computing technology helps the human resource management in encouraging team work, alignment of goal, and self-career management. Collaboration of HR and cloud computing model helps in the enhancing the performance, innovativeness, and intellectual capital of an organization.

### **IV. OPPORTUNITIES**

Cloud computing fosters apparent computing power in the market place. Some of the advantages of using cloud computing model are:

- Pay-for-use – using cloud computing model is less expensive than using in-house software. Using clouds is low in cost as it does not require heavy investment in infrastructure as well as subscription is as per user's need. Further, user has option to discontinue service as and when they wish. This kind of need-based subscription helps in avoiding disadvantage of long-term contracts that was earlier used.
- Computing elasticity – in-house server limits the capability of an organization or individuals to store data. Further, it is difficult to reduce or increase the storage capacity of in-house server as per their need. Here, cloud computing helps in provisioning the storage requirement as per need, and at any time.
- Global accessibility – since the clouds are located on network, data stored on these clouds can be accessible from diverse location and from diverse platforms.
- Low cost – the facility to store data on clouds will help organization to reduce their expenses on in-house hardware and software. In addition to this, time is also saved as less amount of supervision is required for storage, management, and retrieval of data.
- Increased effectiveness - cloud system is capable of controlling as well as optimizing the service provided. Transparent system of monitoring, reporting, and controlling of resource usage helps in enhancing the quality of services delivered.

### **V. CHALLENGES**

Confidentiality, privacy, and security issues are the prime huddle in reaping the benefits of services fostered through cloud computing (Jaeger, Lin, Grimes, 2009; Kandukuri, Ramakrishna, Rakshit, 2009; Kaufman 2009). The disadvantage of using cloud computing by the HR managers can be the loss or misuse of private data. Data stored in the public cloud can be easily stolen as it is easily accessible to the hackers (Jensen, Schwenk, Gruschka, Iacono, 2010). The challenge related to misuse of data arises where the private data becomes visible to the other users or malicious attackers get unauthorized access to the data. Further, data are usually stored in a remote location that can lead to issue of vendor-lock-in or incapability of the user in deleting data from the cloud (Pearson, 2009). Furthermore, there is threat to client's data being used for commercial objectives, as these data may be used by the cloud service provider for commercial purposes (Kresimir and Zeljko, 2010). The other area of concern is related to security of the data. This security threat arises when malicious users uses botnets to infects clouds through malware and spams, attempting to upload malwares to various computers, and others. Further, legal issues crops up when an attempt is made to transmit data that is outside the specific jurisdiction.

## **VI. DISCUSSION**

The various challenges of cloud computing can be resolved through taking strategic steps. The issue of data security, data integrity, and data access can be resolved through implementing appropriate user identification, authentication, and authorization. This can be done through establishing proper system for monitoring, validating, coordinating, and controlling the accessibility power of customer on the network traffic. In addition to this, restriction should be implemented in case of accessibility of data between applications. Encryption can be done for ensuring effective authentication. The privacy or the theft of private data can be protected through taking proactive steps for management of data confidentiality. This can be achieved through restricting the sharing of confidential information related to accounts; applying filters that will hide or remove sensitive information; monitoring of the unauthorized behaviour on network; implementing as well as communicating transparent system of monitoring, communication, and compliance. Further, obfuscation can be used to protect confidentiality of data.

## **VII. CONCLUSION**

Cloud computing is viewed as the most recent innovation in the field of communication and technology. Cloud computing offers numerous benefits, like scalability, flexibility, and others to individuals as well as organizations. HR managers can effectively use cloud computing for taking speedy decisions, performance monitoring, searching prospective employees, enhancing mobility of the workforce, and others. While implementing cloud computing model, HR manager can resolve the threat of data privacy, security, and integrity through clearly identifying, communicating, and monitoring of data storage, transmission and handling process on clouds. Further, policy should be implemented to make cloud service provider responsible as well as accountable for protecting the sensitive information. Individuals as well as organizations should also remain cautious while sharing their personal credentials and sensitive information. Taking these strategic steps will help individual and organizations to achieve sustainability and profitability through the use of cloud computing technology.

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