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OPEN CHALLENGES FROM THE CLOUD COMPUTING ADOPTION PERSPECTIVE

ASHISH A. PATOKAR¹, DR. V. M. PATIL², PROF. S. V. DHOPTÉ³

1. Dept. of Computer Science & IT, Shri Shivaji College, Akola.
2. Head & Associate Professor, Dept. of Computer Science & IT, Shri Shivaji College, Akola.
3. Prof. Ram Meghe Institute of Technology & Research Badnera, Amravati.

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Abstract: The Cloud computing in the field of business data and IT industry play an important role and one of the fastest growing fields of industry. Still in the field of cloud computing during the implementations its faces critical issues like security, data loss and access of data and resources because of client switching over the cloud computing. The cloud computing is a model rather than a technology. The previous technology where limited to a specific client but cloud attempts to a global platform. Cloud computing plays an important role in the field of resource managing on demand self-service, data access, scalability and reliability to the enterprise than quality service. This paper focuses on cloud computing security, privacy that must be consider in order to adopt cloud services in information critical industries and challenges during the implementations of cloud computing environment.

Keywords: Cloud computing, Cloud security, Security challenges



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Corresponding Author: MR. ASHISH A. PATOKAR

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INTRODUCTION

Cloud computing utilized in IT industry to deliver real time scalable services to enterprises, industries, organizations and for individual in a cost effective ways. In spite of several benefits of cloud computing still there are numbers of challenges for its adoption to manage the number of resources considering the factor of strong security and privacy techniques.

- a) Software Security
- b) Platform Security
- c) Infrastructure Security

In the computational need today's information technology plays an important role of cost effectiveness. The motive of the enterprises towards increase their return on investment whereas the individuals try to reduce their cost factor. The overall solution of these regard is a cloud computing emerge as the fifth utility to reduce the cost and increase the performance of IT solution. A large number of organization, company and researcher are dealing with cloud related issue due to the fact that cloud computing services is a feasibility solution.

In other words many organization, company, researchers and individuals face the various challenges and problem during adopting the perspective of cloud computing [1]. The challenges such as handling uncertainties, dynamic variations in work load or optimization of virtual network technology, process overflow scheduling, data availability, auditing etc. and problems are how to migrate applications utilization of software platform and security regarding migrated applications etc.

2. DEFINITION OF CLOUD COMPUTING:

For the purpose of utilization of the resources I deploy a definition of cloud as "Cloud Computing is a phenomena for enabling convenient on demand network access to share a number of configurable computing resources (like networks, peripheral devices, storage devices, servers and services) in a cost effective way within following advantages as on demand service scalability, interface, autonomy cost and challenges"[3].

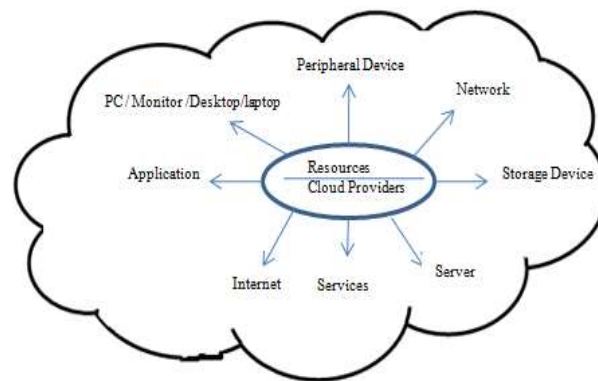


Figure: Concept of Infrastructure in Cloud

3. CLOUD ADOPTION:

In the Adoption of cloud system reflects in major issue regarding security as regal issues are the major factor for cloud adoption. The legalization around the Jurisdiction for which they are hosted. The result also said that there is a huge risk during use in public sector and that create a many challenges for adoption of the cloud. Another analysis result that the increase traceability and audibility. The study of researcher such as Armbrust (2009) and Iryar and Henderson (2010) [4] said that cloud adoption capabilities like traceability enable the usages of very large information service within an organization to be tracked that becomes to ability to trace out history, location and application of an atom through recorded documentations and is necessary for ensuring that companies conform with internal and external constraint. The researcher pointed out that “Transparency and Integrity” are very important with public and private sector bodies for both sector need to demonstrate that things are doing properly.

The analysis revealed that the adoption of the cloud is more collaborating along with their supply chain, improve in team engagement, improve communication inside the organization more learning and resource scaling[1].

4. OPTIMIZATION AND ATOMIZATION RESOURCE MANAGEMENT:

The analysis of the researcher said that there is a lack of automatic, intelligence and optimization in managing heterogeneous and large scale infrastructure of cloud computing resources, services. To guaranty service level agreement (SLA) between customer and provider including quality of the services (QoS). The provider has energy efficient, scalable and fault tolerance services in SLA guaranty criteria and ability to pay penalty to the customer in case of any failure from the agreed SLA. Therefore the major issue related to automatic resources

management and optimization of the system is about the automatic fault detection and removal in order to automatic balance the current workload incoming request from the available resources. In this kind of management require knowledge management (KM) and Artificial Intelligent (AI), Machine learning (ML) and Decision Making (DM)[5] techniques to adopt dynamic monitoring and intelligence management of various resources in order to improve the efficiency of the system. As per the analysis of the observer optimization and atomization of the resource management in cloud computing in order to increase the efficiency service level agreement (SLA) and quality of service (QoS) and fault tolerance services these are the main challenges regarding the cloud computing issue.

The following question arises during the efficient ARM [6] and Optimization of the cloud system.

- How to detect the failure in the system.
- Develop algorithms for efficient an optimized utilization of cloud.
- Increase the fault tolerance of the cloud by means of optimization and ARM.
- Develop an innovative idea for cloud computing for optimization and Atomization.

5. OPEN CHALLENGES FROM CLOUD COMPUTING ADOPTION

The following is the open research challenges while adopting the cloud computing perspective.

A) Affection by Required Bandwidth:

The resource uncertainty emerges from a number of issues while adopting the cloud that includes the number of factors such as client location contain types heterogeneity and much more[7]. The lack of required bandwidth may lead to use degradation in QoS in case of multimedia applications. The required strength of bandwidth is largely affected by the factor.

- i) As per the demand of bandwidth for media application.
- ii) Client workload bandwidth demand.
- iii) Users locations and type of device that can use.

B) Challenges to manage dynamic workload varieties:

An important benefit of cloud computing hybrid architecture is that there is a potential handle the workload during peak hours. For example in a local data center arranged a enough server capacity to handle these peak hours. The technology can be used to utilize the various heterogeneous infrastructures for suitable configuration of a mix model of various workload and built a final model up to the expected probabilities of the every workload. Occasionally the utilization of the workload changes over the type to figure out a change in placement model.

C) Utilization of Virtual Networks:

Virtual Networks topologies are regularly used to communicate between client and server or between one to another. Virtual networks migration or not proper allocation that results in disturbing the communication between VM and physical model. Communication between VM and the host networks switches are access and consume critical amount of power because of allocation and reallocation of the networks devices that cause information exchange [8] delays in time and consume extra energy for reallocation for that purpose reallocation controller needs to guaranty that the expense of the migration should be minimum.

D) Data Availability:

Data availability means availability of data software hardware to the authorized user based on demand or upon the interest by an authorized entity that is cloud ensure that data and data handling is accessible to the costumer depending upon its interest or demand [9]. The availability of the system incorporate the framework capacity to handle the operation even when the some authority mischief that is user friendly operation to communicate in the cloud environment including security and services. Cloud computing services include the resources framework and network accessibility at all time.

E) Security:

The major security issues in cloud system using multiuser despaired environment are the availability of the data and information within participating system, maintain the data integrity and information for that cloud such as modification of data or information in respect of unauthorized access or failure of the system and that is the major issue in place of public cloud [10], authority to check over the access of service or their components with full of control, optimization of virtual networks topology and maintain the security level in order to add or

remove the resources. We focus our research direction into the different aspect include scalability, virtualization security, multimedia applications management etc.

The basic security necessity without deploying the particular requirements [15] of the access in order to protect data and information.

CONCLUSION:

This paper is largely based on benefit and challenges of cloud adoption and its perspective and implications that consider the technological, organizational and environmental factor. In case of technical factors include relative advantages over time saving and increase scalability. While consider compatibility refer to the better bandwidth and connectivity in order to wide spread adoption in their respective organization. A cloud adoption change the way of companies interact with internal and external sources within the organizations while considering the challenges which emerge during the analysis of finding.

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