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Cloud Computing - An Emerging Technology

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Abstract:- The aim of the assessment is to identify the different aspects associated with cloud computing. Cloud computing is considered as one of the emerging technologies that helps in improving the performance of an organization. Cloud computing is considered as a wide pool of technology that helps in improving the performance. The paper aims at defining the basic concepts related to cloud computing. The advantages and the characteristics that are associated with the cloud computing technology will be discussed within the paper.

Keywords:- *Cloud Computing, PaaS, SaaS, IaaS, Resource, Self Services, Hybrid Cloud.*

I. INTRODUCTION

The objective of this paper is to provide a knowledge about the cloud computing. Cloud computing is considered to be most efficient way of sharing the computing resources. With the wide increase in the number of users for computer and mobile it has been observed that the data storage factor also became crucial. Every business aims at storing their data effectively so that it becomes easy to manage the overall performance. The cloud computing concept needs to be managed properly so that it becomes easy to manage the performance.

The main reason behind using cloud computing is that it helps in decreasing the hardware and software demand from the user perspective. This paper will focus on highlighting the features that are going to be offered with the use of cloud computing. The paper will provide a proper description about the cloud computing. It is expected that by the end of this paper it will become easy for readers to understand the major aspects associated with the cloud computing. Cloud computing has the potential to increase the storage capacity and also improves the performance. After conducting surveys it has been observed that around 94% business has claimed huge improvement in their overall performance. It is very much essential to improve the performance so that it can lead to enhancement of the overall business functionality.

II. CLOUD COMPUTIG CHARACTERSTICS

This section focused on stating the key features that are offered with the use of cloud computing. Cloud computing offers wide range of features that are essential for managing the performance. The cloud computing offers a wide range of benefits that includes cost savings, security, flexibility and loss prevention [1]. The key characteristics that are offered with the use of cloud computing are discussed below:

A. Rapid Elasticity

Cloud computing ensures that proper elasticity is offered towards the users for the purpose of enhancing the performance. Customers are allowed to access the resources through any device irrespective of time and location. Great elasticity helps in improving the business process [3].

B. Resource Pooling

Cloud computing also focuses on offering multi-tenant model for providing better features to the customers. Based on the demand of the customers virtual and physical resources are assigned [4]. However cloud computing does not offers any control over the location or the resources.

C. On Demand Self Sevrice

On demand self-service is considered as the most important feature of Cloud computing. This offers the user with the ability to monitor the capabilities offered with the cloud storage, network and the server capabilities. In addition to this, the on demand self-service also allows the user to monitor the overall performance.

D. Avalilability

Cloud computing features can be modified as per the need of the users. Wide storage is offered towards the users. This focuses on analyzing the storage capability and ensures that the features are accessed properly for the purpose of improving the performance [2].

E. Pay as you go

Cloud computing resources are used for the purpose of monitoring the performance of the company. Cloud computing allows the users to select the pay structure based on their needs. It is important for the users to select proper cloud structure. Once the cloud structure is selected by the users there are no hidden costs.

III. CLOUD COMPUTING SERVICES

Cloud delivery models are referred to the different models that are offered towards the users for the purpose of improving the storing capability. The different types of cloud computing services that are offered towards the users are Software as a service (SaaS), Platform as a service (PaaS), and Infrastructure as a service (IaaS) [5]. This section is going to describe the features that are offered with the different cloud computing services.

A. Software as a Service

SaaS is referred to the distribution model that includes applications that are typically hosted by a service provide so that it becomes easy to made available towards the customers. SaaS gained huge importance in the working

filed due to the wide range of benefits. The major reason behind adapting SaaS includes the lower cost, better scalability and integrations and easy upgrades for enhancing the business functions [6]. SaaS has the potential to offer a better efficiency towards the users and ensures that all the necessary aspects are disclosed in front of the users.

B. Platform as a Service

PaaS offers the developers with a platform with flexible environment for the purpose off building an application. This service is accessed by the users through the use of internet. The main reason behind using PaaS architecture is that it ensures that the business model is updated with all recent features. PaaS architecture is considered to be best for software developer, and web developers [7]. This offers better software support and ensures that better way of managing the services are offered towards the users. Thus it can be stated that PaaS is best suited for collaborating and deploying an application.

C. Infrastructure as a Service

IaaS is considered as one of the most fundamental service model of cloud computing. This provides great access towards the computer resources in the virtualized environment. IaaS is considered as the best solution for small scale businesses. It becomes easy to cut the infrastructure cost with the use of this service structure.

IV. CLOUD DEPLOYMENT STRATEGIES

Cloud offers a wide range of deployment strategies for the purpose of offering a better way of integrating the business functions. It has been observed that with an effective cloud deployment strategy it becomes easy to manage the business functionality. Every element within the cloud needs to be analyzed properly at macro and micro level [8]. This will help in integrating the solution properly with effective design.

Deployed in the cloud to attract and retain the potential consumers. The main reason behind implementing proper cloud deployment strategies is to enhance the business performance properly. The different cloud deployment strategies that are offered towards the users are public cloud, private cloud, hybrid cloud and community cloud. This section will focus on explaining different cloud deployment strategies.

A. Private Cloud

Private cloud deployment strategy offers a wide range of benefits that includes elasticity and services based on the needs of the users. Private cloud strategy offers a better infrastructure and also ensures that a proper control is offered towards the users [9]. In addition to this private cloud is considered as most scalable, easily accessible and also ensures that shared capacity is offered towards storage.

B. Public Cloud

Public cloud offers the most flexible feature towards the clients. This allows the client to access the data with the help of internet. Public cloud strategy offers an elastic solution along with better way of strong the data [10]. This also ensures that better access is offered towards the users.

C. Hybrid Cloud

Hybrid cloud is referred to the combination of public and private clouds. This model allows the users to typically outsourcing the non-business critical information. Hybrid cloud is considered as the most effective structure for offering better storage [20].

D. Community Cloud

Community cloud is mainly controlled by a group of organizations that are having a certain interest and common needs. The members of the community are provided with the access towards the data and applications [11]. This ensures that better services are offered towards all the members.

V. BENEFITS OF CLOUD COMPUTING

Cloud computing has the potential to save the overall IT costs. With the use of cloud computing it becomes easy to manage the business functioning. The major benefits that are offered with the use of cloud computing includes are listed below:

a. Lowers the overall IT infrastructure costs for users
b. Improves the business performance
c. Need less maintenance cost
d. Instant software updates are provided
e. Easy backup and recovery options are provided
f. Increases the data safety [19]
g. Performance and scalability also gets improves
h. Storage capacity also increases

VI. APPLICATION OF CLOUD COMPUTING

Cloud computing has gained huge importance in different sectors due to the wide range of benefits. This section aims at describing the application of cloud computing in different fields.

A. Indusrties: Cloud computing has provided a wide range of facilities towards the different industries by reducing the technical issues. With the use of proper resources it becomes easy to accesss the data [12]. the main aim behind using cloud based model is that it helps in giving an edge forr improving the buissness performance.

B. Eductaional field: Cloud computing helps in providing better way for managing the resources. This also ensures that a better way teaching the students are offered towards the education fields.

C. *Medical fields:* Cloud assists are used in the medical sector for the purpose of storing the patient's information effectively without any data loss. This also ensures that proper support is offered towards the data stored within the system [13].

D. *Banking sector:* With the growing needs of the population it has been observed that the functions of all the banks has also became automated. Thus it can be stated that with proper use of cloud computing it becomes easy to improve the security of the system [14].

VII. CHALLENGES

This section focuses on describing the issues that are faced with the use of cloud computing. It has been observed that there are several issues that have the potential to hamper the user's performance. The major issues identified have the potential to hamper the all over performance. The issues that hamper the performance are discussed below:

A. Security

Cloud computing has the potential to hamper the overall performance. The major security threats those are likely to come along with the use of cloud computing is that eavesdropping, denial of service attacks and illegal invasion [15]. These security aspect needs to be monitored properly so that it becomes easy to manage the data.

B. Cost Barrier

Cloud computing offers an efficient working structure with high charges. The cost needed for hardware can be reduced. However the cost behind bandwidth is high and this leads to increasing the overall budget [16]. It is quite difficult for small organizations to implement technologies like cloud computing.

C. Performamce

Cloud computing tends to suffer widely due to lack of proper management. The issues with performance have the potential to hamper the overall performance. The major performance lacks includes the technical snags arising, internal flaws and break down of the system.

D. Data Portability

Data portability is considered as an essential factor that needs to be managed properly while managing a data effectively. It is important to ensure that the data are locked successfully within the cloud [17]. However it has been observed that the cloud technology fails to integrate proper data portability within the system.

E. Hacking

The data stored with the cloud are vulnerable to several risks such as hacking. There are certain professional hackers who have the potential too breakthrough the firewalls for the purpose of stealing the information from an organization. Cloud providers also have the potential to hack the data from the storage. There is a need to select proper cloud providers for services [18]. Thus it is important to implement proper measures for protecting the data from unwanted hackers. The system needs to be protected from the hackers so that it becomes easy to manage the performance properly.

VIII. CONCLUSION

The paper has focused on discussing the basic concepts related to the cloud computing. There is certain important aspect that needs to be identified properly so that it becomes easy to manage the performance. The paper has focused on discussing the key factors associated with the cloud computing. Thus it can be stated that with the use of cloud computing technology it becomes easy to manage the business performance. The paper has been divided into different sections. The paper has highlighted the key features of cloud computing, different cloud models, cloud deployment strategies, applications of cloud computing and challenges faced with the use of cloud computing. Hence it can be concluded that with the proper implementation of cloud it becomes easy to improve the performance of the organization. The paper has identified a wide number of challenges faced with the cloud computing. Thus in order to achieve flexibility with the business functions it is important to develop proper cloud strategies.

IX. RECOMMENDATIONS

Cloud computing is considered to be the best solution for enhancing the performance of an organization. Cloud computing needs to be developed properly and thus it is important to implement proper measures for protecting the data. With proper recommendation it will become easy to improve the overall performance of the business. The ways in which the cloud computing use can be carried out successfully are described below:

- Recommendation 1: identifying the data and performing proper operations that will be carried out to cloud.
- Recommendation 2: Defining own requirements for technical and legal security
- Recommendation 3: Performing proper risk analysis for identifying the security measures for improving the cloud performance.
- Recommendation 4: identifying the type of cloud so that it becomes easy to perform the activities.
- Recommendation 5: Proper service provider needs to be selected for the purpose of achieving better services.

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