An era of Cloud Technology It's Necessity and Challangeing Areas.

[1]Deblina Sarkhel, [2]Sayar Ahmad Kuchy, [3]Debabrata Samata

[1]Garden City College, Bangalore, India,
[2]Lead Consultant, ITC Infotech, Bangalore, India,
[3]Assosciate Professor, Dept. of Computer Applications, Dayanand Saragar College, Bangalore, India
Email : [1]deblina.research@gmail.com, [2]skuchy11@gmail.com

Abstract — in the era of rapid development of processing and storage technologies of the Internet, computing resources become cheaper, more powerful and more available than the earlier days. Due to this technological revolution, recent trends introduced in new computing model named cloud computing, where resources can be provided as general utilities that could be leased or released by any kind of end users through the Internet. We can see that cloud service adoption is quite complex compared to other technologies, even it is more complex in data management, system integration and the management of multiple cloud providers. In this paper, we will analyze the advantages of Cloud Services from business perspective, Cloud models, Limitations of Cloud technologies. So, that we could do research on that particular aspects to overcome those challenges.

Keywords— Cloud Computing, Data Privacy, Data Storage, IaaS, SaaS, PaaS, Semantic Web,

I. INTRODUCTION

Weather we believe or not but directly or indirectly we are entirely dependent on the Cloud Technology. A very simple example of cloud services is that we use over internet like an e-mail service, web hosting and data storage etc. across the internet service. There are different reasons for why the organizations opting for the Cloud Technologies in preset days.

A.   Reduce cost and increase scalability

It lowers the cost of entry for smaller firms that are trying to benefit from compute-intensive business analytics that were hither to available only to the largest of corporations. These technologies typically involve large amount of computing power for short time, and cloud computing makes such dynamic resources possible. It also represents a huge opportunity to the third-world countries that have been so far behind in the IT revolution.

B.   Automatic update

When an organization adopt for cloud computing service from any cloud service provider, the service provider pays for all up gradations and installations facilities for giving the latest and best option automatically So, the consumers does not have to bother for all such issues.

C.   Remote access

When an organization runs, so naturally, it should be able to access all valuable data at any time anywhere; no matter what! Cloud computing made it easier. Only one need an Internet connection has to active to access documents, customer relationship management programs, or any other info that has stored in cloud. If in case Internet connection is not available, some cloud providers allow to work offline and then synchronize files when the internet connection available.

D.   Customization

If we keep work in the cloud, it becomes easier to connect cloud applications together. Like an example of any service technology which makes its own building blocks so that any small business can take whatever is required from whichever provider they prefer. This kind of and customization facility always offered by any cloud providers.

II. EMERGING PLATFORM

Recent days ICT is considered as an essential commodity in daily life. One of the biggest approach of information technology is the cloud computing. The cloud computing provides an infrastructure through which any user can have access to application software by virtual environment across internet from anywhere in the world. The main advantage of cloud computing is; it works beyond the facilities offered by cluster and grid computing. The cloud service provides high security, fault Tolerance and high potential environment. It is Centralized and distributed, both provides web services as well (SOAP and REST).

Cloud Computing is one of the very powerful technology and complex computing which reduce the unnecessary maintenance of expensive hardware and software. The rapidly increasing of Big Data we can approach it through the usage of cloud computing technology. From the business perspective Cloud technologies consist of three types.

IaaS   SaaS   PaaS

A.   SaaS: Software As A Service

It is very familiar from the customer perspective. The main function of SaaS is to move the task of managing software and the deployment of software to the third-party services. Among the most familiar SaaS applications for customer relationship management application Salesforce like Google Apps, and storage solutions brothers like google drive and Dropbox are more popular. The advantage of using SaaS applications is to reduce the cost of software ownership by eliminatinging the technical staff to install, manage, and upgrade software. As well as it reduces the cost of licensing software.

B.   PaaS: Platform As A Service

Is at the lower level than SaaS. It provides a platform on which software can be developed and deployed together.

Moreover, the PaaS providers are abstract about the work of dealing with servers and it provides an environment to the clients in which the operating system and server software, hardware and network infrastructure are can be taken care of.

C.   Iaas: Infrastructure As A Service

Is a combination of highly automated and scalable resources. That include cloud storage and network capabilities which can be self-provided. It is the most flexible cloud computing model that allows for automatic deployment of server, processing power, storage and networking facilities.

The relation between Big Data and Cloud computing is like co related, Big data helps to process analysis and storing data through query execution across multiple datasets. Cloud Computing acts like an engine through the help of Hadoop a platform of data processing. In Big data, the utilization of distributed storage devices can be implemented using the help of cloud computing.

III.   SEMANTIC WEB AND CLOUD COMPUTING

The World Wide Web Consortium (W3C) came up with a new extension called Semantic Web. This standard promotes common data formats. It also helps in exchanging protocols on the Web. The Resource Description Framework (RDF) in an example of an extensions by W3C via semantic web.

The Semantic Web provides a common framework that allows data to be shared and reused across applications, enterprises, and community boundaries.

The Semantic Web was coined by Tim Berners-Lee. It will be used in web of data that can be processed by machines.

As we discussed that RDF is the used for storing and representing data and SPARQL is a query language to retrieve data from an RDF store.

Cloud Computing systems can utilize the power of this RDF - Semantic web technologies to provide the user an efficient and fastest storage and retrieval of data.

which in turn will improve the accessibility of data intensive applications.

IV.   CHALLANGING AREAS

Although there are many benefits to adopting cloud computing. There are also some significant barriers to adoption.

The state-of-art has limitation in cloud technology. It does not provide proper Quality of Services for the consumers. There are issues associated with SLA as well in terms of algorithm design, Virtual resources. In terms of risk management also.

So to recover this kind of situation we need such kind of mechanism that supports interpretability between various cloud service providers to build up a bridge of communications. We should work on energy efficiency as well because now a days data center consumes electricity it is equivalent to a city. So, we need to make designs such a manner so that it reduce power consumption and carbon footprints.

Though this technology is growing rapidly still it has some limitations in several things like scalability, data integrity   etc. Scalability refers to handling of large amount of data in an appropriate manner. In case of cloud computing the features of RDBMS made it so complex to store data in a proper manner. After that the invention of NoSQL has made it little easier to deal with this particular issue. Still we need to work more on this field. Data integrity is associated with the concept of security, which rely on that only an authorized person can modify a data. We need to focus on such aspect that if a user is physically not able to access the cloud resources than there should be some mechanism to look after the data and to maintain that securely.

Apart from all such issues there are more issues which has come across now days. Like Connectivity and Open Access issues, Management of multiple users at a time,

Outsourcing, Extensibility and Shared Responsibility etc.

V. CONCLUSION

The revolution of cloud computing has provided opportunities for research in all aspects of cloud computing. We presented the advantages of cloud technology, three cloud service models, and we have explored the challenges areas. We need to focus on the drawbacks of this technology to support and to improve it.

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