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CLOUD COMPUTING: A REVIEW

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ABSTRACT

The project involves study of cloud computing basics and terminologies. The aim is to show how services are deployed to the internet users as well as organization via a medium or concept called as cloud. Cloud computing increases optimized use of resources such as servers, software and infrastructure. Cloud is simply a concept of putting services on a common central point so that it can be distributed across several users at any place. Having several advantages cloud computing is a trending discipline which must be adopted by users so as to increase optimized use of services in form of software, hardware and infrastructure which benefits to the user or organization in form of cost effectiveness, reusability, choice making and change management.

Key words: Cloud Computing, Grid Computing, CloudOS, LockIn, IaaS, PaaS, SaaS

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1. INTRODUCTION

Cloud computing also known as Grid computing is associated with delivering the hosted services on the Internet Idea of cloud computing is taken from 1970s where IBM created a new OS called Virtual Machine. The concept at that time was called "Group Computing". In1960 concept of Cloud Computing was given by J.C.R Lickliderwhich who gave a new vision to world called "Cloud Computing world". In 1997, first time Could Computing term was coined by Prof. Ramnath Chellappa. After that companies got attention of Cloud and major Companies created their cloud according to their requirements. In 1999 "Salesforce" created first cloud. The concept was delivering application to end user via Internet and companies began to store application data on cloud. In 2002 "Amazon" created second cloud providing the end user with own storage space on the cloud. [1][2][3][4]

2. CLOUD COMPUTING HAVE THREE BASIC MODELS OR CATEGORY OF SERVICES:

1. Infrastructure-as-a-Service (IaaS)
2. Platform-as-a-Service (PaaS)
3. Software-as-a-Service (SaaS)

2.1 Infrastructure-as-a-Service

It is a kind of service model in which, the computing resources such as hardware, networks, server and more are provided. It enables the provider of cloud service to use the peripherals and other physical resources which are already bought by third party. This decreases the overheads and costs of the provider. Examples of IaaS include Physical Computers, Virtual Machines (such as Oracle VMBox), software bundles, firewalls and more**. Advantages** of IaaS are:

1. **No Investment**: Already underlying hardware is used which support the cloud services.
2. **Cost Effective**: As client or provider it uses the present hardware and software packages, hence investment cost is saved as well as provider only pays for the resources which are used.[5][6]

2.2 Platform-as-a-Service

In this kind of model the cloud providers typically provide a platform such as Operating system which consists of packages of programming languages, databases and web services environment, Server software, tools for design & development. It has several **advantages** over which important are

1. **Stability:** Provider has control over applications and configuration environments for hosting environment.
2. **Fast testing and deployment:** Development teams can try different configurations, multiple machines & different locations, to run stress tests and assess performance, compatibility, and response in ways that are impossible in a local environment.[7][8]

2.3 Software as a service

It is a kind of service model in which, applications are provided by Vendor or Service provider typically on internet. Practical examples are Google Drive, Docs, and Sheets. A real time example could be Bank which maintains user data, allows security, net banking services etc.

Advantages of SaaS

1. **Auto updates and patches:** Applications updated over the cloud reflect to common internet based service so easy for the users to instantly avail the benefits.
2. **Compatibility:** Users do not have to worry about configuration of their machine for using an application, as software run on remote machine all users can access it usually via a simple browser.
3. **Global accessibility:** Very obvious as no restriction is put, so anyone can use the services.**[5]**

3. CLOUD COMPUTING TERMINOLOGIES

Lock –In: Lock-in is a situation in which a customer using a product or service cannot easily switch over to a competitor's product or service.

E.g. A Person faces a complexity of switching over data from one cloud vendor to other.

Issues can be Data Instability, data alteration.

Lock-in could be of basically **three types:**

1. **Platform lock-in:**Implies changing platform issues,
   E.g. from VMware to Xen or other virtual machine.
2. **Data Lock-in:** Implies compatibility and issues relating to where to put or switch the data. For data security and alterations, Cloud **computing, Bill of Rights** is formed which laws are indicating our security and other issues relating to data
3. **Tools Lock-in:** Implies different vendors or providers have different set of tools which often are not compatible with the pre hosted services and applications. [9]

Cloud

Refers to an IT environment that is designed for purpose of remotely provisioning **scalable** and **measured IT resource.**

IT Resource: Could be either physical or virtual IT related artifact.

E.g. Physical: Server

Virtual: Software or Program

Cloud Consumer: Party which **uses** cloud based IT resources.

Cloud Provider: Party which **provides** cloud based resources.

Scaling: It refers to handling **increased or decreased** usage demands.

Scaling has 2 subtypes

1. **Horizontal Scaling:** Increasing or decreasing resources that are of same type:

Increasing the resources is called **Scaling Out.**

Decreasing the resources is called **Scaling In.**

E.g. previously had 2 servers, increased to 4.

2. **Vertical Scaling:** Increasing /decreasing resources based on higher or lower capacity.

Increasing the resources is called **Scaling Up.**

Decreasing the resources is called **Scaling Down.**

e.g: from Core i3 to Core i7 server is example of Scaling Up [10]

4. CLOUD BASED OPERATING SYSTEM (OS)

- Cloud OS is the term that is used for describe the lightweight operating system for the tablets or the computers. The system that access the web-based application and store and retrieve the data from the remote server.
- Developed by GOOD OS LLC.
- Simply OS that runs on a web browser and allow user to work some basic task without boot the whole system.
- Design for the device that used to browse the internet like Net books, Mobile etc.

- In the cloud OS the concept called "**DATA LIVE AND RUN**" on the internet instead of the hard disk.
- Cloud OS standalone application that's why the need of the hardware is very low.
- First Cloud OS is introduced in 2009 into the GIGABYTE 912 touch screen Net book. [11]

Based on the type of functionalities and unique features cloud OS comes in various flavours

4.1. Different Types of the Cloud OS

1. **ZeroPC:-**The OS lets us to connect cloud storage like Dropbox, Google drive, Sky drive for shared the paperwork. Have some apps like instant messaging, a text editor and tools for managing documents and sharing it online.
2. **JoliCloud**: JoliCloud provide the 15000 user application to access the internet and for some other works. The main purpose of the OS is manage all the online life such as facebook, twitter and more at a single place. The apps name is "JoliCloud ME".
3. **Glide OS:-**The OS has features like email and basic tools like notes, text editors, presentation maker and calendar for the use of paper work. The main purpose of the OS is to synchronize the files between the OS to HARD DRIVES.
4. **Silve OS:-**The Purpose of the OS is to write documents, listen music, create notes and play games. Disadvantage is that this OS does not provide any storage for data.
5. **iSpaces Cloud Computer:-** The OS provides some basic features like File manager, Notes, Browser and office Suits. The OS provides its own office suits called ZOHO Office.
6. **ZimDesk:-**The OS is the full of features and apps. It also provide the custom wallpaper, contact Manager, FTP Client, Mail client, File manager.
7. **The Places A:-** The OS provide the basic apps like radio, file manager, notes etc. The main purpose of the OS is "**Instant Messaging**" between the users. [12]

5. BENEFITS OF CLOUD COMPUTING

For various companies and organization, on demand services makes lot of sense now a days. It is cheap means for a organization to have all resources on one place. Easy scaling and spreading of resources. It is not secure as the data may reside on a location which is handled and managed by third party provider, alterations could be possible. If something goes wrong or any other infrastructure issues happen , the services stop and it is difficult to maintain backups every time and in a trend of big data the data collected and processed could cost much. Increases profitability by utilizing resources in optimum manner. The charges are calculated using several techniques such as polling, resource monitoring but it overall works on pay-as-you-use concept. It cannot provide all the resources and facilities. To avail the benefits of cloud a internet connection is mandatory.

6. CONCLUSION

In today's ever changing world where needs and demands changes dynamically, a single software solution may not be able cope up for long times. Software, Hardware needs to be updated regularly so as to provide uninterrupted services to users and Cloud is a solution. Hence Cloud Computing has appeared as a boon to organizations who wants to go for electronification of their services and procedures.

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