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Pool of IT Resources: Cloud Computing

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Abstract— Cloud computing technology is catchword in IT industry and expecting a new skyline for coming world. Today we can't think the world without web. Tomorrow we can't think the world without the Cloud Computing. The Cloud Computing is going to change the way the figuring power is utilized for our everyday exercises that we can't think today. It has changed the scenario of IT Hub by providing pool of resources, storage, infrastructure, and platform to build and run those applications. In this paper we are trying to understand various services models, need of cloud computing and hurdles and benefits in path of cloud computing.

_Keywords-_Cloud computing,Cloud ,Internet,resource,IT,backup,unlimited storage space,Distributed computing,pool

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I.   INTRODUCTION

Cloud computing is popularly increasing technology in trend. In Cloud Computing the word 'cloud' is metaphor for network of network called Internet. Cloud computing is a complete paradigm where large pool of systems are connected in private or public network to provide dynamically, scalable infrastructure for application, data and file storage and significantly reduce the cost of computation ,application hosting and storage of content[1] thereby providing high scalable, on demand service to clients.(as shown in figure :3)
Cloud Computing has changed the scenario of IT businesses by providing wide variety of software, storage service and infrastructure to clients over the internet without need to expend money on purchasing individual software and storage utilities.
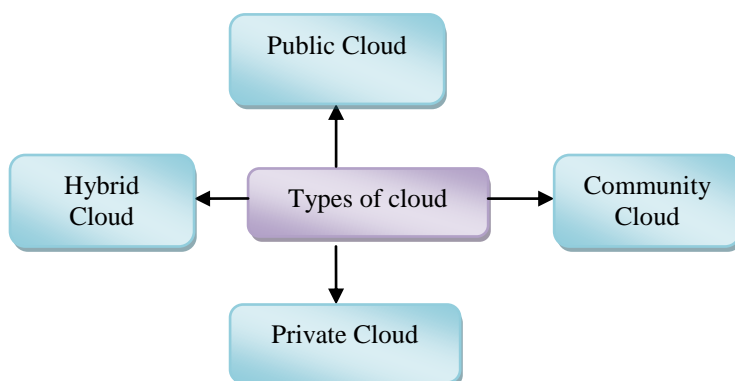 In Cloud computing, the cloud can be any of the following categories:-

Figure 1:Cloud forms

➢ Public Cloud: This form of cloud is for public. Here entire information is to be managed by the cloud service and no control on infrastructure but sharing of information leads to frequent attacks.

➢ Private Cloud: It is another form of cloud which is not meant for public. In this, the information is kept private until and unless it is remotely located and privacy of data easily is maintained.

➢ Community Cloud: This form of cloud belongs to a community.

➢ Hybrid Cloud: It is a combination of two clouds i.e. Public Cloud and Private Cloud. For Eg: Google Compute Engine.

With Cloud Computing technology, users use variety of devices including PC's, laptop, Smartphone and PDA'sto access programs, storage and application-development platform over the internet via services offered by cloud computing providers. [2]
Several cloud service providers are available to provide the high range of service which is: GOOGLE, HP, icloud, Amazon web services.

II.   WHY THERE IS NEED OF CLOUD COMPUTING?

With increment in PC and Mobile user's, information stockpiling has turned into a need in all fields. Substantial and little scale organizations today blossom with their information and they spent a colossal measure of cash to keep up this information. It requires a solid IT bolsters and a capacity center point.
Not all organizations can manage the cost of high cost of in-house IT foundation and move down help administrations. For them Cloud Computing is a less expensive arrangement. Maybe its proficiency in putting away information, calculation and less support cost has prevailing to pull in considerably greater organizations also.
Distributed computing diminishes the equipment and programming request from the client's side. The main thing that client must have the capacity to run is the distributed computing frameworks interface programming, which can be as basic as Web program, and the Cloud organize deals with the rest. We as a whole have encountered distributed computing at some moment of time, a portion of the well

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known cloud administrations we have utilized or we are as yet utilizing are mail administrations like Gmail, hotmail and so on.

While getting to email benefit our information is put away on cloud server and not on our PC. The innovation and framework behind the cloud is undetectable. It is less vital whether cloud administrations depend on HTTP, XML, Ruby, PHP or other particular advancements to the extent it is easy to understand and utilitarian.

An individual client can interface with cloud framework from his/her own particular gadgets like desktop, portable workstation or versatile.

Distributed computing saddles private venture adequately having constrained assets, it gives independent ventures access to the advancements that already were out of their compass. Distributed computing encourages private companies to change over their support cost into benefit. How about we perceive how?

In an in-house IT server, you need to give careful consideration and guarantee that there are no imperfections into the framework so it runs easily. Also, if there should be an occurrence of any specialized glitch you are totally capable; it will look for a great deal of consideration, time and cash for repair. While, in distributed computing, the specialist co-op assumes the total liability of the intricacy and the specialized deficiencies.

III.   ELEMENTS OF CLOUD COMPUTING

The cloud computing environment is consists of various elements:
- Clients: This is actually whom end users interact to maintain their information on the cloud. It may be a mobile, thin client or thick client.
- Data Servers: It is a data centre which is collection of servers through which the information is accessed through an internet.
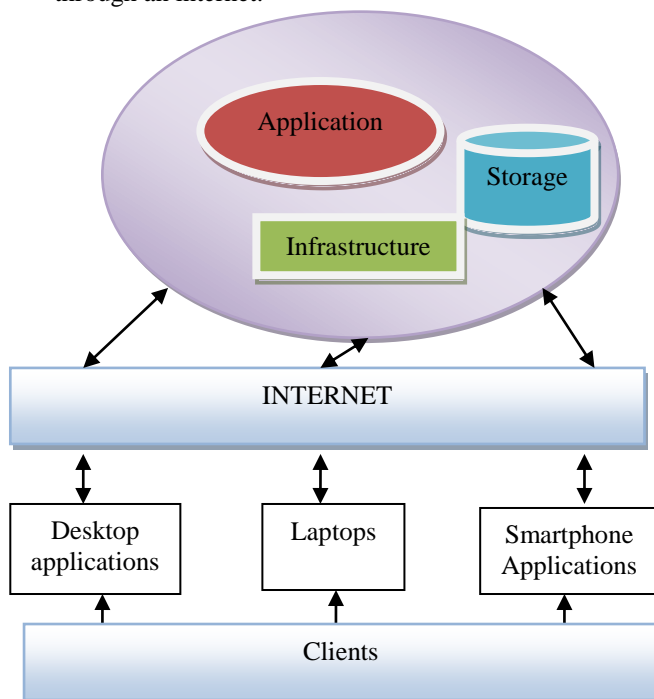

Figure3: Conceptual view of Cloud computing

- Distributing Computing Server: Its is a server which is geographically dispersed or distributed not located at same location.

IV.   SERVICE MODELS

The cloud computing service models consists of various layers. These layers are Saas, PaaS, and IaaS.
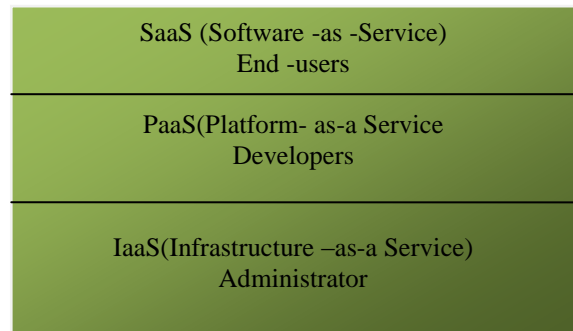

Figure 4:Service model Stack

A.   SaaS(Software –as-a Service)

It is a topmost layer in service model stack In this cloud providers install, operate and maintain application software on the cloud where the client access through the medium of internet without need of infrastructure or platform to run the applications.

As it is platform independent and on-demand services this layer is used by end users. Here end users enjoy software without concerning about backups and maintainence.and make no expense on licensing of software.

Only the Client has to connect and avail the software.

Various services providers are listed: Microsoft CRM, leading company Sale force etc.

B.   PaaS(Plateform –as-a Service)

It is next lower than Saas. This is type of service in which cloud providers provide development environment or platform to develop an application thus offers various development tools like web servers, database tools, hardware and software tools etc.

This layer is used by developer who writes, test and maintain the application. In this type of service various operating system like (Linux, iOS, Windows etc are install in the cloud without need to be physically installed.

C.   IaaS(Infrastructure –as- a Service)

It is lowermost layer in the stack which offers infrastructure services or resources like computers, servers or virtual machine, data storage. All these resources are put together to manage the workload.

Iaas is the place physical server space is leased and kept at the vendor's information warehouse. They can run or manage own operating system, application, data and middleware. This layer basically used by administrator.

V.   MERITS OF CLOUD COMPUTING

Talking about advantages of cloud computing it offers multiple benefits to IT industry the various advantages are as follows:

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i) Large capacity to store data:

There is unlimited storage space in the cloud which allows us to store huge amount of data in the cloud.

ii) Recovery and backup of data

All the data is stored in the cloud, taking backup or restoring the same data is much easier rather than store the same data on a device. Thus backup and recovery is very simple as compare to earlier methods.

iii) Cut down the cost

Using the cloud computing model is very effective in term of cost. It does not need to have huge capital funding for setting up hardware requirements. Only one need to have the internet connection to access the resource.

iv) Anytime and Anywhere Access

Once the client log in to cloud they can access any type of information at anytime and anywhere through the source of internet. Thus offers 24*7 services without worrying about geographical location or time.

iv) Quick upgradation of software

Another advantage to cloud computing is that you are no longer faced with choosing between obsolete software and high upgrade costs.When the application is web-based, updates happen automatically available the next time you log into the cloud. When you access a web-based application, you get the latest version without needing to pay for or download an upgrade.[3]

v) Large pool of resources

Cloud computing consist of large pool of resources as it reduces the load of many companies to buy the resources. Thus offers reusability and optimum utilization of resources.

VI.   DEMERITS OF CLOUD COMPUTING

Though the cloud computing offers merits but it has also demerits which are stated below:

i) Worst Downtime

In cloud computing access to any resource is through the medium of internet if the internet service offers slow speed the cloud computing does not provide particular resource to clients and hence clients face the bad downtime

ii) Issues related to Security:

Every data in cloud is accessible from the internet and anything which is connected to the internet is not always secure. Our data in the cloud is more vulnerable to attacks. So security is very less in such a computing technology.

iii) Other Issues

The information on the Cloud can be accessed within a moment but when the system can have some technical issues or system comes to halt or failure of providing any resource then entire cloud computing environment fails which is big disadvantage. So service providers should provide the provision of maintenance also.

VII.   CONCLUSION

Though the Cloud Computing has drawbacks but we cannot deny the fact that the cloud computing has rocked the IT world by providing abundance of benefits which are countless like sharing of resources, backup of data , unlimited storage space and many more.

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