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REVIEW ON CLOUD COMPUTING DESIGN CHALLENGES

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ABSTRACT

Now a days for complex and large data storage a powerful network architecture is used which is termed as cloud computing. Cloud computing is independent of location customers can use resources from any device and any time when they needed, they can use free or pay basis. In this paper we are describe concept and architecture of cloud computing.

I. INTRODUCTION

In past few years, cloud computing spread all over the world as a new paradigm for giving some useful features like on demand infrastructure, SAAS and flexibility[1]. As the name suggests cloud computing is a technology by which information exchange and software management done by virtual means, like in any programming language.

It is on demand computing for everyone with access to cloud. It offers large amount of it services which ranging from software to storage to security, which can make available at anytime, anywhere and from any device which is connected to the cloud or we can say that it is on demand access to computing resources like network, storage, application and such services which are developed and made available by cloud provider with less management[2]. Here basically the world cloud does not means only internet, cloud may be public private or hybrid.

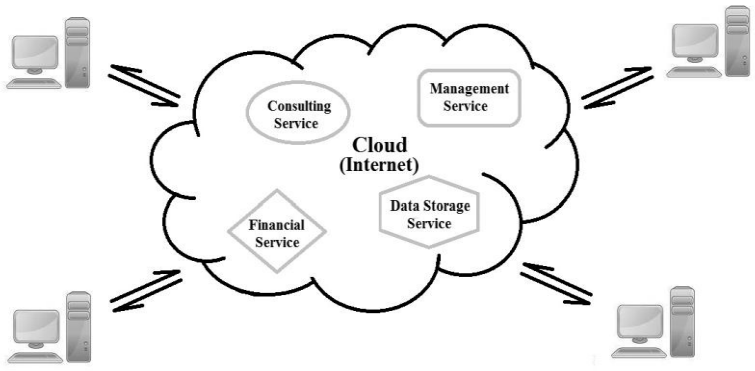

Fig1.1 : Cloud Computing

II. ARCHITECTURE OF CLOUD COMPUTING

To understand the cloud computing we have to study its abstraction layers starting at the bottom and working higher layers[3,4]. The bottom layer is physical hardware layer, it is cloud provider owned server which act as backbone. This layer are used by big corporations who need large amount of underlease hardware as a service (HaaS) [5]. Cloud provider upgrade its underleased hardware time to time so that they can overcome some issues like efficiency any easy allocation of HaaS for their customers. These issues are also solved by remote scriptable remote boot- loader. It is a set of stack software that can be implemented remotely data centre servers.

Second layer is cloud software kernel it is bridge between cloud hardware layer and software infrastructure layer. It is abstraction's lower level [6]. It is implanted by cloud 's software. When other programs are running, server's hardware resources are maintained by this layer.

Third layer is software infra structure it includes services such as computational resources, data storage and communication. Customers can use computational resources in form of virtual machines.

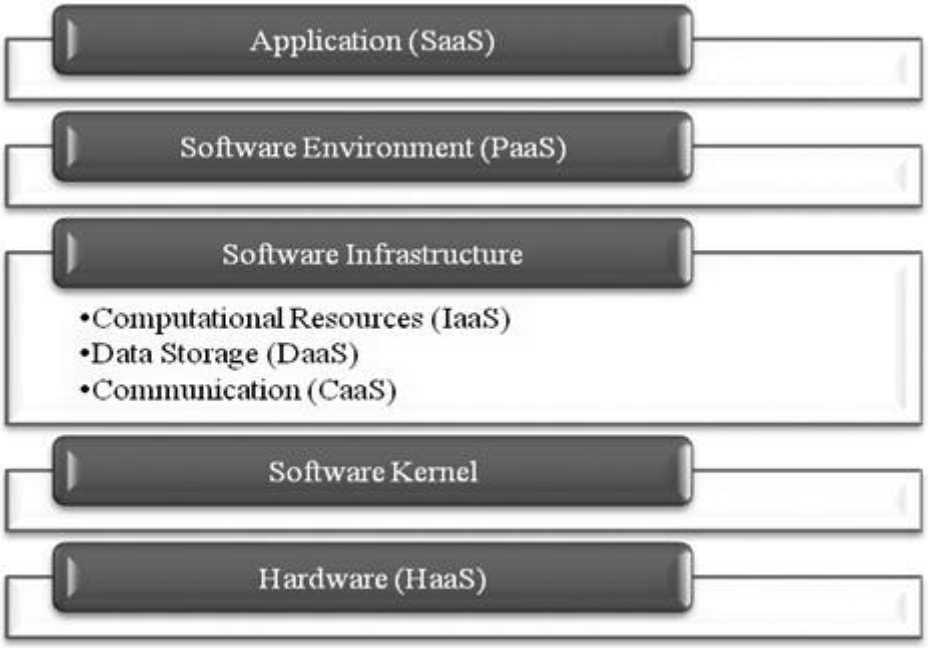

Fig 2.1 : Cloud Computing Abstraction Layers

Software environment layer is the next layer this is also called as platform as a service. Cloud application developers use this layer to implement their programs in cloud [7,8]. Cloud app developers have programming environment and APIs so that software can interact with software environment of the cloud. Such as in Google app engine have runtime environment and API libraries to interact with cloud environment [9,10].

III. STRATEGIES TO MANAGE MULTIPLE CLOUDS

Multiple clouds may be consisting of combination of public clouds or it may be combination of public and private clouds to make hybrid cloud [11]. There are many strategies which include inter cloud protocol and cloud federation method. Inter cloud protocol consist of:

Actual physical layer
Physical metaphor layer
Platform metaphor layer
Communication layer
Management layer
Endpoints layer

Fig:2.2 Inter Cloud Protocol Layer

They have some issues regarded quality of service, storage space, monitoring [12,13]. for standardization cloud have some specific elements for example format of virtual images to achieve interoperability enhanced standard are used. the main building block for resource management are abstract computational resource[17,18]. To identify each computational resource a set of operations are defined such as identified, started, stopped, or query of resource manager. To view, modify and checked that how much recourses are used by them, the resource manager interact with IT employees [19]. The data given by IT services by different clouds provider the resource manager map the resource of connected clouds from a genric and take out and map each resource computation [20]. When a resource is mapped the cloud provider uses the same mapping scheme and use another cloud ported by the resource manager to make genric computation resource representation [24]. By this representation of resources, we can find out each available resource from resource managers algorithm, the power utilized at the time of processing. Then we can initialize or stop resources so that we can maximize cloud resources available for company under his target budget.

Dodda, Mooorse, Smith observed such example of hybrid cloud resource [25]. They manage their cloud management in Amazon EC2 by query and by use of a interface named representational state transfer to manage its own cloud [26]. To manage the working of resource manager query interface of EC2 use a query string in URL.A defined set of parameters and its value which are include in query string are given by Amazon [27]. The cloud manager then sent these Query strings to URL if any operation want to called out these they can called out by HTTP GET .The resource manager can manipulate EC2 interface and mapped to a generic interface. The soap interface operations are same when it uses the Query interface the HTTP GET sent to perform operations of cloud management. But the parameters of both the interfaces are different for each operation [27].

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