

SURVEY PAPER ON CLOUD COMPUTING

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Abstract— Cloud computing could be a new computational model which is based totally on grid computing. Cloud computing are often outlined as a computing surroundings wherever computing wants by one party are often outsourced to a special party and once would really like be arise to use the computing power or resources like information or emails, they'll access them via web. This paper is for anyone who will have recently detected regarding cloud computing and desires to understand lots of regarding cloud computing. In this paper, we discussed Cloud Computing, Architecture of Cloud Computing, Characteristics of Cloud Computing, and different Services and Deployment model of Cloud Computing.

Keywords: - Cloud computing, On Demand computing, Distributed computing, Data centre

1. INTRODUCTION

Cloud Computing provides a surroundings for resource sharing in terms of ascendance frameworks, middleware's and application development platforms, and business applications. The operation models of cloud computing grasp free infrastructure services with value another platform services, subscription-based infrastructure services with supplemental application services, and free services for sellers but sharing of revenues generated from shoppers. The term Cloud Computing has been out lined in some ways by analyst corporations, academics, business practitioners and IT corporations. Clouds is an over

sized pool of simply usable and accessible virtualized resources. These resources is additionally dynamically recon-figured to manage to a variable load (scale), permit ting additionally for an optimum resource utilization There is little doubt that cloud computing is that the foremost famous topic in IT business. Google, Amazon, Yahoo and alternative web service suppliers, IBM, Microsoft and alternative IT vendors have imply their own cloud computing strategy, numerous medium op-erators are have place an outstanding deal of attention on cloud computing, the terribly low price of cloud com-puting platform becomes the foremost focus of the busi-ness strategy, numerous medium operators are have place an outstanding deal of thought on cloud computing, the horribly low price of cloud computing platform becomes the primary center of the industry.

2. ARCHITECTURE OF CLOUD COMPUTING

Cloud ADPS is split into two sections: the face and so the backside. They each unit of measurement connected with one another through a network, sometimes the net. Front is what the patron (user) sees whereas the tail is that the cloud of the system. Face has the client's laptop and then the appliance needed to access the cloud and then the rear has the cloud computing services like numerous computers, servers and data storage

A. Architectural layers of cloud computing:

The architecture of a cloud computing can be categories into four layers: The Physical layer, the infrastructure layer, the platform layer and the application layer, as indicated in Figure 2.



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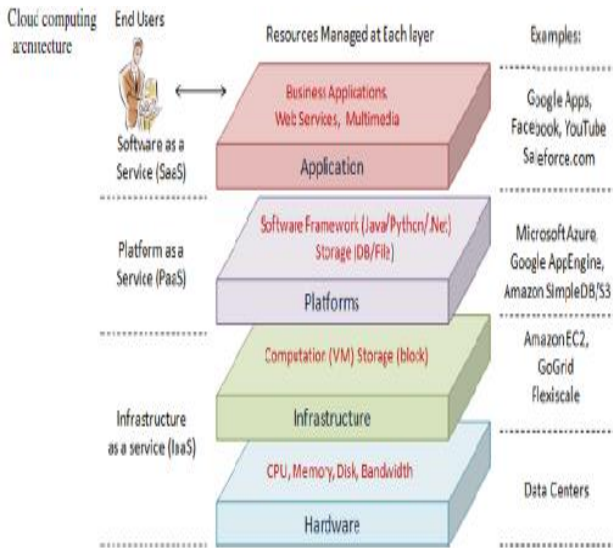


Figure 2. Architecture layers of cloud computing [4]

i) The Hardware layer The Hardware layer: The hardware layer is answerable for managing the physical assets of the cloud, including routers, servers, switches, cooling systems and power

ii) The Infrastructure layer: The infrastructure layer is additionally called as virtualization layer. The infrastructure layer makes a pool of storage capacity and computing resources by splitting the physical resources using virtualization technologies like KVM and VMware.

iii) The Platform layer: The platform layer supported top of the infrastructure layer, and this layer comprises of operating systems and requisition structures.

iv)The appliance layer: the appliance layer comprises of the particular cloud provisions, for e.g. Business Applications, Multimedia & Web Services

B. Service Models of Cloud Computing

Cloud Computing has various different service models like Infrastructure as a Service (IAAS), Platform as a Service (PAAS), and Software as a Service (SAAS).

i) Infrastructure as a Service (IAAS): Cloud consumers can directly use IT infrastructures (processing, storage, networks, and other fundamental computing resources) provided within the IaaS cloud. IaaS cloud provides “Virtualization” so on integrate/decompose physical resources in an ad-hoc manner to satisfy growing or shrinking resource demand from cloud consumers. An example of IaaS is

Amazon's EC2.

ii) Platform as a Service (PAAS) PaaS: provides a development platform that supports the entire "Software Lifecycle" which allows cloud consumers to develop their cloud services and applications (e.g. SaaS) directly on the PaaS cloud. the foremost difference between SaaS and PaaS is that SaaS only hosts completed cloud applications whereas PaaS offers a development platform that hosts both completed and in-progress cloud applications. Example of PaaS is Google AppEngine.

iii) Software as a Service (SAAS): Cloud consumers can release their applications on a hosting environment, which might be accessed through internet from various clients (e.g. browser, PDA, etc.) by application clients. samples of SaaS are Salesforce.com, Google Docs, and Google Mail.

3. CHARACTERISTICS OF CLOUD COMPUTING

a. In cloud computing, users access the data, applications or the opposite services with the help of a browser notwithstanding the device used and also the user's location. The infrastructure that's mostly provided by a third-party is accessed with the help of web. Price is reduced to a serious level because the infrastructure is provided by a third-party.

b. Less IT skills are needed for implementation.

c. Reliable services are often obtained by the employment of multiple sites that is appropriate for business continuity and disaster recovery

d. Sharing of resources and prices amongst an outsized assortment of users permits economical utilization of the infrastructure

e. Maintenance is simpler just in case of cloud computing applications as they have not been put in on every user's pc.

f. Pay per use facility permits activity the usage of application per shopper on regular bases.

g. Performance is usually monitored so it's ascendible.

h. Security is usually just about nearly as good as or on top of ancient systems as a results of suppliers are able to devote resources to resolution security problems that several customers cannot afford. However, security still remains an important concern once the knowledge is kind of confidential.

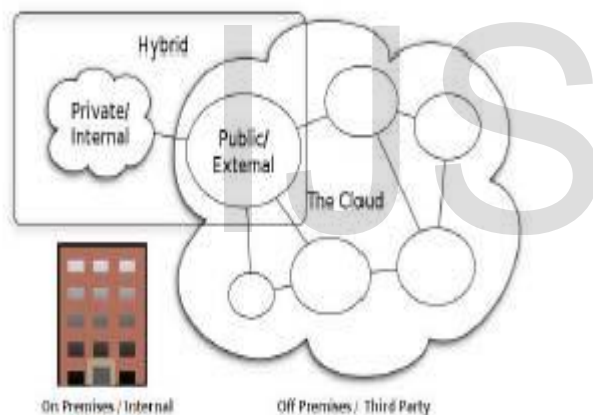
i. Cloud may well be a large resource pool that you simply just should purchase to keep together with your need; cloud is solely like running water, electric, and gas which is able to be charged by the number that

you simply just used.

j. Cloud computing makes user get service anyplace, through any reasonably terminal. The resources it needed return from cloud instead of visible entity. Users will attain or share it safely through a straightforward method, anytime, anywhere. Users will complete a task that can't be completed in an exceedingly single notebook computer

4. DEPLOYMENT OF CLOUD COMPUTING

Clouds can usually be deployed in line with the holder of the Cloud data centers. A Cloud environment will hold either one Cloud or multiple Clouds. Thus, it can often be well-known accompanied by single-Cloud environments and multiple-Cloud environments. the next subsections provides a classification of single cloud environments in step with the Cloud information centre possession and a classification of multiple-Cloud environments in step with which kind of Clouds square measure combined.



A. Public cloud: publically cloud. users access to the services victimization external interfaces which may be offered by internet browsers via web. The users share a daily cloud astructure which they're doing not seem to pair it. though public clouds unit rather less secure, they're terribly advantageous in costs. For those organizations that can't afford huge IT investments and don't have many counselling, public cloud appears to be an honest select.

B. Private Cloud: a non-public clouds operation is inside associate organization's internal enterprise information center. the foremost advantage here is that it's easier to manage security, maintenance and upgrades and conjointly provides additional management over the preparation and use. Non-public cloud is often compared to system. Compared to public cloud wherever all the resources and applications were managed by the service supplier,

privately cloud these services unit pooled along and created out there for the users at the structure level. The resources and applications unit managed by the organization itself.

C. Community Cloud: A community cloud will be a collaborative effort made for sharing infrastructure between multiple organizations. It forms interested in a point of cost-effective scalability and self-governing stability. The community cloud is managed and secured by all the participating organization or by a 3rd party service provider.

D. Hybrid Computing: Hybrid cloud will be a mixture of two or more clouds (private, community, or public) that remain unique entities but are bound together by standardized or proprietary technology that permits data and application portability (e.g., cloud bursting for load-balancing between clouds.)

5. CHALLENGES OF CLOUD COMPUTING

A. Security: it's clear that the security issue has competed the foremost necessary role in preventive cloud computing acceptance. No doubt, shot your information, running your software package on somebody else's memory device victimization somebody else's hardware seems frightening several. Well-known security problems like information loss, phishing cause serious threats to organization's information and software package. Moreover, the multi-tenancy model and so the pooled computing resources in cloud computing has introduced new security challenges that require novel techniques to tackle with. for example, hackers will use Cloud to rearrange as Cloud typically provides lots of reliable infrastructure services at a relatively cheaper worth for them to start an attack

B. Accountancy Model: Cloud customers should consider the tradeoffs amongst computation, communication, and integration. Whereas mi-grating to the Cloud will considerably reduce the infrastructure value, it'll raise the value of knowledge communication, i.e. the worth of transferring an organization's information to and from the final public and community Cloud and so the value per unit of computing resource used is perhaps visiting be higher. This downside is particularly distinguished if the patron uses the hybrid cloud preparation model wherever the organization's information is distributed amongst kind of public/private (in-house IT infrastructure) clouds. Intuitively, on demand computing is smart only for hardware intensive job

C. Charging Model: The elastic resource pool has created the worth analysis lots additional difficult than regular information centers, which regularly calculates their price supported consumptions of static

computing. Moreover, academic degree instantiated virtual machine has become the unit of research rather than the underlying physical server. For SaaS cloud suppliers, the worth of developing multi residency among their giving is very substantial. These include: re- design and improvement of the package that was originally used for single-tenancy, price of providing new options that afford intensive customization, performance and security improvement for coinciding user access, and managing complexities induced by the upper than changes.

D. Service Level Agreement (SLA): Although cloud customers don't have management over the underlying computing resources, they're doing have to make sure the standard, convenience, responsible, and performance of those resources once customers have migrate their core business functions onto their entrusted cloud. In alternative words, it's important for purchasers to urge guarantees from suppliers on service delivery.

E. Cloud Interoperability Issue: Currently, every cloud giving has its own approach on however cloud clients move with the cloud, resulting in the "Hazy Cloud" development. This severely hinders the event of cloud ecosystems by forcing marketer protection that prohibits the flexibility of users to come back to a choice on from various vendors at the identical time so on optimize resources at completely different levels inside a company. plenty of significantly, proprietary cloud genus makes it terribly tough to integrate cloud services with Associate in Nursing organization's own existing bequest systems (e.g. Associate in Nursing on-premise knowledge centre for very interactive modeling applications in an exceedingly pharmaceutical company).The primary goal of ability is to understand the seamless fluid knowledge across clouds and between cloud and native applications.

6 CONCLUSION:

Cloud computing might be a replacement technology wide studied in recent years. At this time there are numerous cloud platforms that are employed in every one in trade and in learning. The due to use these platforms may possibly be an outsized issue. During this paper, we've a bent to delineate the definition, styles, and characteristics of cloud computing, cloud computing services, readying model and challenges of cloud computing. There are several issues in cloud computing. As an illustration of cloud computing issues is capacity, presentation, Service Level Agreement (SLA), information privacy and measurability, data truth, weight equalization,

organization in frequent clusters in cloud platform, and reliability, the guard of cloud platform.

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