OVERVIEW OF CLOUD COMPUTING

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ABSTRACT

Cloud computing is a type of software computing in which web applications utilize cloud computing environments to finger the real world user traffic through the assistance of mixture of cloud technologies and solutions. Cloud computing leads an chance in contributing Testing as a Service (TaaS) for Saas and clouds. But at the same time, it cause new issues, challenges and requirements in software computing, mainly in the field of testing clouds and cloud based applications. This paper gives an overview with reference to some basic concept of cloud computing, it is types and major issues and challenges that comes in this field. It also gives the benefits of cloud computing over conventional software computing

I.INTRODUCTION

Cloud computing is a sunshade term that is used to describe a broad range of online services. Clouds calculate service provides convenient, scalable, on-demand access to a pool of online computing resources, such as virtual machines, work out server clusters or networked storage. The word cloud (also phrased like "the cloud") is second-hand as a symbol for "the Internet, "so the phrase cloud computing means "a type of Internet-based compute, is the use of programs hosted on a Web-based service. A network of huge computers that structure's the cloud handles the storage space and purpose of a program that would or else generate a serious workload for a smaller computer.

II. CLOUD COMPUTING HISTORY

The scheme of cloud computing is not really new as it goes back several decades. It was pioneered by Professor John McCarthy, a famous computer scientist who initiated time sharing in late 1957 on adapted IBM 704 and IBM 7090 computers. McCarthy expected that some corporations would be able to sell computing resources through the utility business model. Soon sufficient, different organizations paid for their use of computing resources offered at service bureaus. In the past two decades, different implementations tried to leverage similar computing models including:
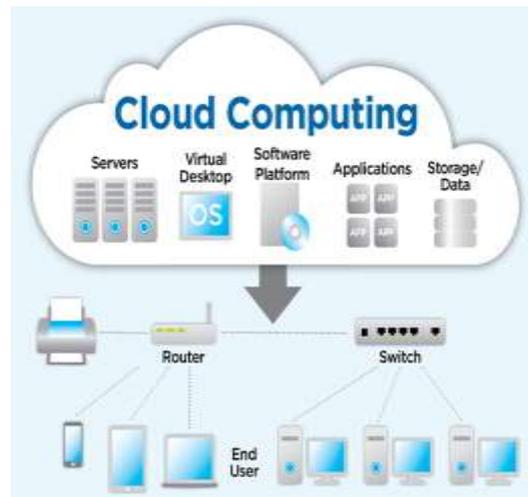
i. **Web Hosting:** It allows individuals and organizations to host their websites on spaces provided by datacenters of other companies. In web hosting, service providers put forward different hosting options to clients. Offerings variety from at no cost web hosting for personal uses or shared web in which tens of websites are hosted on the same server, to committed servers that give each one client his own server with full control over it.

ii. **Application Service Provider (ASP):** A paradigm anywhere software companies offer applications in support of remote access by clients through networks in favour of monthly fees. ASP model exempts clients starting the burden of buying, installing, and maintaining pre packaged solutions and underlying hardware infrastructures by changing these tasks to providers.

iii. **Volunteer Computing**: Many research experiments that depend on high volume computing processes gather their needs by exploiting idle computing resources available from side to side volunteers. This concept provides researchers with acceHassan, Qusay (2011). "Demystifying Cloud Computing"(PDF).

iv. **Online File Sharing:** Websites allow Internet users to share their files online. For example, Flicker customers are capable of managing and sharing their photos over the Internet. In this model, shared records are hosted on open spaces that Internet customers are able to access at any time and wherever needed.

v. **Social Networks**: A mixture of websites connects users fascinated in definite subjects. Examples are YouTube, Wikipedia, Blogger, Facebook, and MySpace. All these networks permit their users towards sharing their data and properties such as presentations, videos, games, and small computer applications in a simple and capable manner

Cloud Computing Types
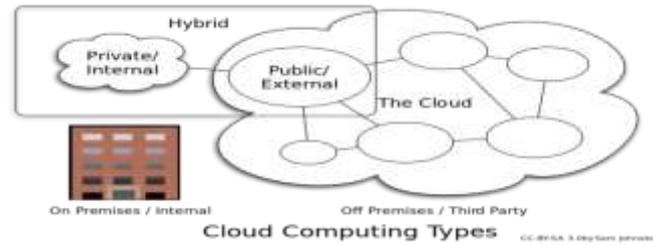
III. OVERVIEW OF DEPLOYMENT METHODS

Cloud computing is a rising trend that offers a pioneering way to conveying software, data storage, and computing services. At the same time as the term cloud computing refers in universal to the delivery of services on request over a computer network, the National Institute for Science and Technology (NIST) has define four different cloud computing deployment models; private cloud, community cloud, public cloud, and hybrid cloud.

i.PUBLIC CLOUD:

This is the deployment model that most frequently described as cloud computing. In this model, all of the physical resources are owned and operated by a third party cloud computing provider. The provider services multiple clients that may consist of individuals or corporations utilize these resources through the public Internet. Services can be dynamically provisioned and are billed based on usage alone. This model provides the highest degree of cost savings while requiring the smallest amount of overhead.

Types of Cloud Computing Deployment Models
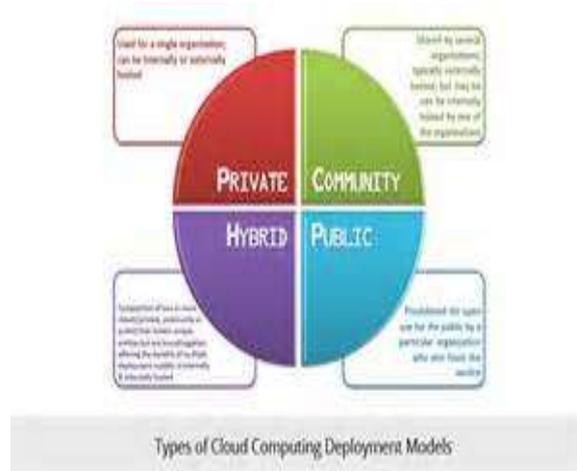
ii.PRIVATE CLOUD

A private cloud describes computer services delivered to a single organization. This model shares a lot of the features of a recognized client-server architecture, while integrating sort associated during other models cloud computing. Similar to other cloud models, services are delivered on requirement from a dispersed infrastructure. Unlike the client-server computing model, users do not access a particular resource in a known location and there are minimal hardware and software requirements for their client computer. The cloud computing resources may be located on or off-site, and they can either be managed in-house or by a third party. This model addresses the security and privacy concerns that are inherent in other cloud computing models.

iii.COMMUNITY CLOUD:

A community cloud contains character of the public and private cloud models. Like a public cloud, the community cloud might contain software, data storage, and computing resources that are utilized by numerous organizations. Where this model differs from the public model is that the infrastructure is solitary utilized by a group of organizations that are recognized to each other? Similarly to a private cloud, these organizations are answerable for the process of their own infrastructure. The community cloud model can provide better cost savings than the private cloud while offering some of its safety features. This form is best suited for organizations that share universal requirements such as security or legal compliance policies. It can be managed by the member organizations or by a third party provider.

iv.HYBRID CLOUD:

The hybrid cloud computing model employs aspects of all of the other cloud models as well as it is the most ordinary method of cloud deployment inside a large organization. A company can use internal resources in a private cloud preserve total control over its proprietary data. It can subsequently use a public cloud storage supplier for backing up less aware information. At the same time, it might share computing resources with other organizations that have similar needs. By combining the advantages of the other models, the hybrid model offers organizations the most elasticity.

The software-as-a-service (SaaS) service-model involves the cloud supplier installing and maintaining software in the cloud and users running the software from their cloud clients more the Internet (or Intranet). The users' client machines need no installation of any application-specific software - cloud applications work on the server (in the cloud). SaaS is scalable, and system administrators might load the applications on several servers. In the history, each consumer would obtain and load their own copy of the application to each of their own servers, but with the SaaS the customer can access the application without installing the software locally. SaaS classically involves a monthly or yearly fee.

Software as a service provides the correspondent of installed applications in the traditional (non-cloud computing) release of applications.

Software as a service has four common approaches:

1. single instance
2. multi instance
3. multi-tenant
4. flex tenancy

- **Development as a service (DaaS)**

Development as a service is web based, community shared development tools. This is the corresponding to locally installed development tools in the traditional (non-cloud computing) delivery of development tools.

- **Data as a service (DaaS)**

Data as a service is web based design build where by cloud data is accessed during some defined API layer. DaaS services are frequently considered as a dedicated subset of Software as a service offering.

- **Platform as a service (PaaS)**

Platform as a service is cloud computing service which provides the users with application platforms and databases as a service. This is corresponding to middleware in the traditional (non-cloud computing) release of application platforms and databases. We can take on instance for this as Microsoft Azure provides platform as services for multiple language, if we use .net platform then we can construct products by .net framework which will be provided by Microsoft Azure.

- **Infrastructure as a service (IaaS)**

An Infrastructure as a service acts as the physical hardware and going totally virtual. This is the equal to infrastructure and hardware in the usual (non-cloud computing) method running in the cloud. In other words, businesses pay a fee (monthly or annually) to run virtual servers, networks, storage from the cloud. This will moderate the need for a data center, heating, cooling, and maintaining hardware at the local level.

IV.CLOUD COMPUTING PROS AND CONS

- Service providers are in charge for installation and maintaining core technology inside the cloud. Some business clients have a preference this model as it limits their own load of having to maintain infrastructure. Conversely, these customers give up management control over the system, relying on the provider to deliver the needed reliability and performance levels.

- Similarly, home users suit highly dependent on top of their Internet provider in the cloud computing model: impermanent outages and slower-speed broadband that are a minor irritation today can become a critical matter in a fully cloud-based world. On the other hand - proponents of cloud technology argue - such fruition would likely drive Internet providers to keep getting better the quality of their service to stay spirited.

- Cloud computing systems are normally designed to closely track all system resources. This, in turn, enables providers to charge customers fees proportional to their network, storage, and processing utilization.

- Some customers prefer this metered billing approach to saving money, while others will prefer a flat-rate payment to ensure predictable monthly or annual costs.

- Using a cloud computing environment generally requires you to send data over the Internet and store it on a third-party system. The privacy and security risks associated with this model have to be weighed against the profit versus alternative.

V. CONCLUSION

Cloud computing is still a subject of research. A driving factor in the evolution of cloud computing has been Chief technology officers seeking to minimize risk of internal outages and mitigate the complexity of housing network and computing hardware in-house. Major cloud technology companies invest billions of dollars per year in cloud Research and Development. For example, in 2011 Microsoft committed 90 percent of its

$9.6 billion R&D budget to its cloud. Research by investment bank Centaur Partners in late 2015 forecasted that SaaS revenue would grow from $13.5 billion in 2011 to $32.8 billion in 2016

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