A Cloud Computing: A Need of the Day

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Abstract - Cloud Computing is the term given to the use of multiple server computers via a digital network as if they were one computer. The 'Cloud' itself is a virtualization of resources networks, servers, applications, data storage and services which the end user has on-demand access to. These resources can be provided with minimal management or service provider interaction.
Additionally, the cloud can provide the user with a far greater range of applications and services. Therefore the cloud enables users and business scalable and tailored services.
Cloud computing is an increasingly popular paradigm for accessing computing resources. In practice, cloud service providers tend to offer services that can be grouped into three categories: software as a service, platform as a service, and infrastructure as a service. This paper discuss the characteristics and benefits of cloud Computing. It proceeds to discuss the Infrastructure as a service (IaaS). This paper aims to provide a means of understanding and investigating IaaS. This paper also outlines the responsibilities of IaaS provider and the facilities to IaaS consumer.

Keywords - Cloud Computing, IaaS, PaaS, SaaS.

I. INTRODUCTION

The term "Cloud Computing "enables users and developers .to utilize services without knowledge of, expertise with, or control over the technology infrastructure that support them. The use of computer in every field is increased significantly. Each organization is covered by computer so that use and knowledge of computer is necessary. Organization has to think about the infrastructure and storage of data in different computer software's and their use. Due to this additional man power is required and this increases the storage cost. Also the security of that data is very important.

To provide easy access for services promoting information, lower costs, scalability and many other features makes to think about to providing such services .therefore the essential requirement to study the concept of cloud computing in order to provide efficient storage management of data.

Cloud computing gives easy access to information & services anywhere, these services can be of two type i.e. one of them is free and another method is by the mechanism under of pay –as –user needs.

Therefore it as an evitable & essential requirement to study the cloud computing for the efficient data storage management.-

II. CLOUD COMPUTING

Definition:-

Cloud Computing, a term that is defined as a technology that offers services through the Internet platform. Users of this service have access to use it free or paid, it all depends on the service they need.

Cloud computing is nothing but saving your worked data in the clouds (i.e. on third party server) not your local hard disk. For this you require internet connection. Integrated online services such as Google, Amazon, IBM Blue Cloud, Sales force and Microsoft's Azure have become a future trend of shared data center, accessible, secure and scalable for companies at a cost like any other service. The term is a trend that responds to multiple integrated features. One example of this "cloud" is the service provided by Google Apps which includes a browser to the storage of data on its servers. Programs should be in the online servers and can access services and information through internet.
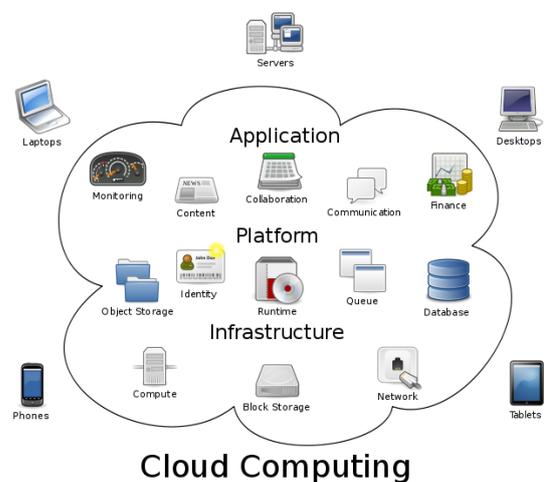
Cloud Computing

The Security of Cloud Computing System enabled by Trusted Computing Technology

Cloud computing provides people the way to share distributed resources and services that belong to different organizations or sites. Since cloud computing share distributed resources via the network in the open

environment, thus it makes security problems important for us to develop the cloud computing application. In this paper, we pay attention to the security requirements in cloud computing environment. We proposed a method to build a trusted computing environment for cloud computing system by integrating the trusted computing platform into cloud computing system. We propose a model system in which cloud computing system is combined with trusted computing platform with trusted platform module. In this model, some important security services, including authentication, confidentiality and integrity, are provided in cloud computing system.

III. ARCHITECTURAL LAYERS OF CLOUD COMPUTING

Cloud computing is typically divided into three levels of service offerings as showed in Fig. 2: Software as a Service (SaaS), Platform as a Service (PaaS), and
Infrastructure as a service (IaaS). These levels support virtualization and management of differing levels of the solution stack.

Client		
User Interface	Machine Interface	
Application		
Components	Services	
Platform		
Compute	Network	Storage
Infrastructure		
Server		

Fig. 2 Cloud Computing Stack

3.1 Software as a Service

This is the idea that someone can offer you a hosted set of software (running on a platform and infrastructure) that you don't own but pay for some element of utilization - by the user, or some other kind of consumption basis. Here you don't have to do any development or programming, but you may need to come in and configure the (very flexible, configurable and sometimes customizable) software. You don't have to purchase anything. You just pay for what you use. A SaaS provider typically hosts and manages a given application in their own data center and makes it available to multiple tenants and users over the Web.

Some SaaS providers run on another cloud provider's PaaS or IaaS service offerings. Oracle CRM on Demand, Salesforce.com, and Net suite are some of the well known SaaS examples.

3.2 Platform as a Service

This is the idea that someone can provide the hardware (as in IaaS) plus a certain amount of application software - such as integration into a common set of programming functions or databases as a foundation upon which you can build your application. Platform as a Service (PaaS) is an application development and deployment platform delivered

as a service to developers over the Web. It facilitates development and deployment of applications without the cost and complexity of buying and managing the underlying infrastructure, providing all of the facilities required to support the complete life cycle of building and delivering web applications and services entirely available from the Internet. This platform consists of infrastructure software, and typically includes a database, middleware and development tools. A virtualized and clustered grid computing architecture is often the basis for this infrastructure software. Some PaaS offerings have a specific programming language or API. For example, Google AppEngine is a PaaS offering where developers write in Python or Java.EngineYard is Ruby on Rails. Sometimes PaaS providers have proprietary languages like force.com from Salesforce.com and Coghead, now owned by SAP.

3.3 Infrastructure as a Service

Infrastructure as a Service (IaaS) is the delivery of hardware (server, storage and network), and associated software (operating systems virtualization technology, file system), as a service. It is an evolution of traditional hosting that does not require any long term commitment and allows users to provision resources on demand.

Unlike PaaS services, the IaaS provider does very little management other than keep the data center operational and users must deploy and manage the software services
Themselves just the way they would in their own data center. Amazon Web Services Elastic Compute Cloud (EC2) and Secure Storage Service (S3) are examples of IaaS offerings

IV. CHARACTERISTICS OF CLOUD COMPUTING

One of the main differences of cloud computing is that there is no need to understand the infrastructure behind it, it becomes "a cloud" where applications and services can easily grow (scale), run fast and almost never fail, without knowing details of "cloud."This type of service is paid according to some measure of consumption, not the equipment used by itself, but for example in electricity consumption or CPU / hour in the case of Amazon EC2. Other features include:

- **Self-healing:** In case of failure, the last backup of the application automatically becomes the primary copy and generate a New one.
- **Scalable:** The entire system / architecture is predictable and efficient. If a server handles 1,000 transactions, 2 2000 servers to handle transactions
- **Governed by a Service Level Agreement** (SLA) that defines a number of policies and what are the expected timing and performance should peak, create more instances. In the case of AWS still wondering if your SLA is adequate.
- **Virtualized:** Applications are independent of the hardware on which to run, even several applications can

run on a single machine or an application can use several machines at once.

- **Multipurpose:** The system is created in such a way that allows different customers to share the infrastructure without worrying about it and without compromising your security and privacy.

V. EXAMPLES OF CLOUD COMPUTING

There are several large companies that are dedicated to providing these services, promoting easy access to our information, lower costs, scalability, and many features that makes us think of comfort we provide, among them are:

- **GOOGLE APPS:** provides the service of business applications such as gmail, google talk, google calendar and google docs, etc.

- **AMAZON WEB SERVICES:** The services offered are the Amazon EC2 ™, Amazon ™ S3, Simple DB ™, Amazon SQS ™.

- **AZURE: MICROSOFT** provides operating system services, hosting, systems development.

- **RACKSPACE,** a popular hosting company, Mosso is behind a company which offers a basic hosting package and from this scaled as needed (and not migrate servers). Integrating services and dissent The Cloud Computing offers an interesting overview about the integration of technologies, RWW refer to a new era that includes 3 layers: SaaS, Cloud Computing, Core Technology in explaining the importance of such integration. One reason why they should not use web applications is that you lose control ... it's as bad as using proprietary software. Both views are valid I think the first is a way to integrate the options are to take advantage of current technology and respond to trends. However, Stallman is correct in its position control.

VI. ADVANTAGES AND DISADVANTAGES OF CLOUD COMPUTING

- Access to information and services anywhere
- Free and pay-as-user needs.
- Companies with ease of scalability
- Processing and storage capacity without installing machines locally.

Disadvantages include:
- Access all the information to third parties.
- Dependence on online services.

VII. CONCLUSION

To summarize, an Infrastructure as a Service (IaaS) offering provides solid cost savings because the

infrastructure associated with providing compute power, storage, and networking does not need to be purchased and maintained by the customer. These assets are the responsibility of the IaaS vendor and customers are only charged for what they use when they use it.

Summarizes Software as a Service. SaaS is also a flexible offering that often appeals to infrastructure architects. Infrastructure architects like IaaS because it provides an infrastructure based approach to outsourcing datacenter workloads to the Cloud. If an

Application can be virtualized it can be uploaded to an IaaS environment and run.

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