A Review On Cloud Computing

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Abstract

In this paper we provide an overview of could computing .Cloud Computing is the upcoming technology which provides easy accessing to resources in the cloud.This provides free services and paid services on demand.Cloud is an extension of internet.In this an overview of cloud computing,cloud computing features,types,characterstices, Architecture,security issues are discussed.Cloud requires more security as its combination of different platformsand an open access internet.

1. Introduction

Cloud computing refers to the provision of computational resources on demand via a computer network (Figure 1). Users or clients can submit a task, such as word processing, to the service provider, such as Google, without actually possessing the required software or hardware. The consumer's computer may contain very little software or data (perhaps a minimal operating system and web browser only), serving as little more than a display terminal connected to the Internet. Since the Cloud is the underlying delivery mechanism, Cloud based applications and services may support any type of software application or service in use today

capabilities available for provisioning often appear to be unlimited and can be purchased in any quantity at any time.

Measured Service*:* Cloud systems automatically control and optimize resource use by leveraging a metering

Essential Characteristics:

On-demand self-service*:* A consumer can unilaterally provision computing capabilities, such as server time and network storage, as needed automatically without requiring human interaction with each service's provider.

Broad network access*:* Capabilities are available over the network and accessed through standard mechanisms that promote use by heterogeneous thin or thick client platforms (e.g., mobile phones, laptops, and PDAs).
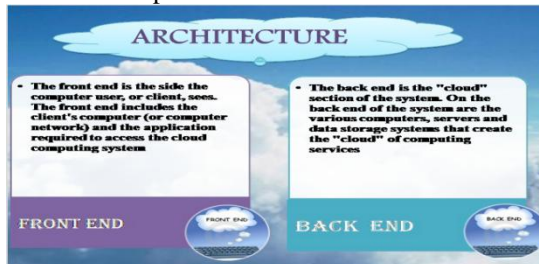
Resource pooling*:* The provider's computing resources are pooled to serve multiple consumers using a multi-tenant model, with different physical and virtual resources dynamically assigned and reassigned according to consumer demand. There is a sense of location independence in that the customer generally has no control or knowledge over the exact location of the provided resources but may be able to specify location at a higher level of abstraction (e.g., country, state, or datacenter). Examples of resources include storage, processing, memory, network bandwidth, and virtual machines.

Rapid elasticity*:* Capabilities can be rapidly and elastically provisioned, in some cases automatically, to quickly scale out and rapidly released to quickly scale in. To the consumer, the
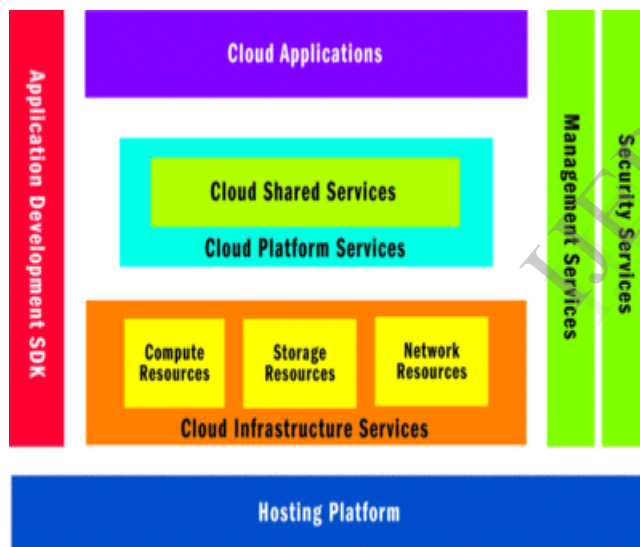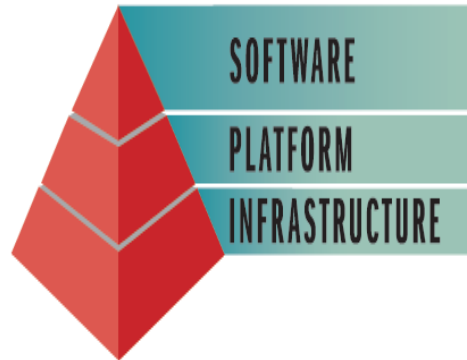
capability at some level of abstraction appropriate to the type of service (e.g., storage, processing, bandwidth, and active user accounts). Resource usage can be monitored, controlled, and reported providing transparency for both the provider and consumer of the utilized service.

2. Architecture

Refers to the components required for cloud computing. These components consists of front end and back end platform.

3. Data models of cloud computing:

Public cloud

This type of cloud computing is the traditional model that everyone thinks of when they envision cloud computing. In this model, vendors dynamically allocate resources (hard drive space, RAM, and processor power) on a per-user basis through web applications.

Layered architecture of Cloud computing:

Salesforce.com and ADP are two well-known vendors that offer public cloud computing services.

Unlimited access- As long as you have internet access and a compatible device such as a smart phone or laptop computer, you can access your data anywhere.

Unlimited data capacity- Public cloud computing is flexible to meet your business' growing data storage and processing needs.

Hybrid cloud

This model combines your business' hardware with cloud computing. Generally, one of your business applications such as Exchange Server 2007 or Microsoft Dynamics will interact with a vendor-hosted service. For example, Cisco, traditionally recognized for networking hardware, offers IronPort Email Security as their hybrid solution and Google, known for hosted solution, offers Postini email archiving.

- **Hardware required-** Hybrid cloud computing requires that you have or purchase hardware to interact with the hosted solution.
- **Software required-** In addition to hardware requirements, your business

will need to have or purchase the software to manipulate and store data.

Private cloud

Also known as "internal cloud computing," private cloud computing is the next generation of virtualization. While similar to virtualization at the server, workstation and application levels, private cloud computing has enhanced features that appeal to many businesses. Two examples of private cloud solutions are VMware vCloud and Citrix VDI.

Increased data security- You and your business are in control of security since data never leaves your network.

Simple compliance enforcement- Depending upon your vertical market, government regulations may prohibit your business from using traditional or hybrid cloud computing. Private cloud computing lets you take advantage of cloud computing features while keeping all regulated data onsite and secure.

Customized IT network control- By keeping your cloud private, you are free to customize your network to meet your specific business needs.

4. Services provided by cloud computing:

Based on the benefits provided by cloud computing in the areas of cost, scalability and security they are categorized in to three.

Generally represented as SPI services. SPI stands for Software, Platform and Infrastructure as a service. i.e, it includes SAAS, PAAS, IAAS.

Software as a Service (Saas):

Software-as-a-Service is a model of software deployment whereby a provider licenses an application to customers for use as a service on demand. One example of SaaS is the Salesforce.com CRM application.

It includes the following categories:

Identity as a Service: offering a centralized (remote) identity management service

Malware as a Service: name for any SaaS solution which has been compromised with malware

Mashups as a Service: enterprise mashups that are offered publicly

Media as a Service (as in: video, audio): providing hosted access to audio/visual services

Queue as a Service: provides a hosted message delivery service

Security as a Service: the delivery of security capabilities using a SaaS model.

Platform as a service (Paas):

Platform-as a-Service is the delivery of a computing platform and solution stack as a service. It facilitates the deployment of applications without the cost and complexity of buying and managing the underlying hardware and software layers. PaaS provides the facilities required to support the complete lifecycle of building and delivering web applications and services. An example of this would the GoogleApps.

Categories:

Development as a Service: a cloud based IDE, allowing developers to build applications with just a browser.

UI as a Service: a rich hosted UI development environment.

Infrastructure as a Service(Iaas):

Infrastructure-as-a-Service provides the delivery of **computer infrastructure** as a service. Instead of purchasing servers, software, data center space or network equipment, clients instead buy those resources as a fully outsourced service. One such example of this is the Amazon web services.

Categories:

Backup as a Service: provides rem0te data backup for your systems; a specific type of Storage as a Service.

Computing as a Service: providing computing resources, network, provisioning, etc as a service.

Database as a Service (or DBaaS): offering a database (relational or not) as a hosted service, a subtype of Storage as a Service.

Ethernet as a Service: a solution provided by network carriers to provide virtual ethernet capacity from a much larger line.

Storage as a Service: providing cloud based data storage capabilities.

5. Issues:

There are many security issues in cloud computing as it's a shared internet cloud .The
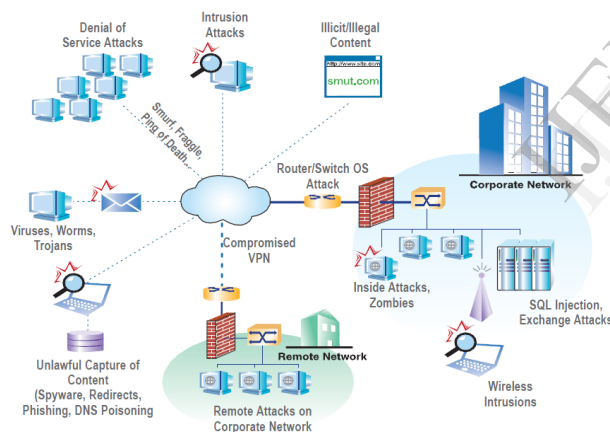
- .Outsourcing Data and Applications

- •Extensibility and Shared Responsibility

- •Service Level Agreements (SLAs)

- •Virtualization

- •Multi-tenancy

- •Heterogeneity

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The following services face these security issues

Saas: Password Management, Leak of version control, No control over legal discovery, Increase vulnerability to privileged user attacks:
Paas : data encryption.
Iaas: Rogue users, Account hijacking, Credential management, API Security risks

6. Conclusion

Cloud computing is a term which describes the services provided by it and its deployment models .Depends on the requirements of organization it has to select the different service provided by the cloud computing. i.e, Software as a Service or Platform as a service or Infrastructure as a Service. Cloud computing is a revolutionary change in the IT trend. Now all the small industries are using Cloud services, but near future all the big organizations also move to the cloud to use services of this. Cloud Computing is like pay for service used. Further study is required to provide solutions to issues shown above

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