

A REVIEW ON CLOUD COMPUTING

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ABSTRACT

Cloud computing is a computing term or metaphor that evolved in the late 2000s, based on utility and consumption of computing resources. Cloud computing involves deploying groups of remote servers and software network that allow centralized data storage and online access to computer services or resources. Cloud computing relies on sharing of resources to achieve coherence and economy of scale, similar to a utility (like the electricity grid) over a network. At the foundation of cloud computing is the broader concept of converged infrastructure and shared services.

Keywords: *Cloud Computing, Cloud Storage, Cloud Computing Security, Public Cloud, Private Cloud.*

I INTRODUCTION

Due to the tremendous success of internet in last few years, computing resources is now more ubiquitously available. And it enabled the realization of a new computing concept called Cloud Computing. Cloud Computing environment requires the traditional service providers to have two different ways. These are infrastructure and service providers. Infrastructure providers manage cloud platforms and lease resources according to usage. Service providers rent resources from infrastructure providers to serve the end users. Cloud Computing has attracted the giant companies like Google, Microsoft, and Amazon and considered as a great influence in today's Information Technology industry. Business owners are attracted to cloud computing concept because of several features [1].

These are as follows

- Lower initial investment
- Easier to manage
- Scalability
- Deploy faster
- Location independent
- Device independent
- Reliability
- Security

II WHAT IS CLOUD COMPUTING

Cloud computing is a technology that make used of internet and central remote servers to maintain applications and data. Cloud computing is a technology that allows consumers and businesses to use applications without

installation and access their personal files at any computer with internet access. This technology allows for much more computing by centralizing storage, memory, processing and bandwidth.

Cloud computing is a model of network computing where a program or application runs on a connected server or servers rather than on a local computing device such as a PC, tablet or smart phone. A user connects with a server to execution a task. The difference with cloud computing is that the computing process may run on one or many connected computers can be, utilizing concept of virtualization. With virtualization one or more physical servers can be configured and splits into multiple unattached "virtual servers, all functioning independently and seem to the user to be a single physical device. Such virtual servers do not physically consist and can therefore be moved in all direction.

Cloud computing is a mechanism of distributed computing that focuses on a wide range of users with distributed access to virtualized hardware and software infrastructure over the internet. It involves distributed computing virtualization, networking, and web service. It has appear as a popular solution to provide cheap and easy access to external IT resources .Through virtualization, cloud computing is able to address with the same physical infrastructure a large client base with different computational needs. The rapid growth in the field of cloud computing also increases severe security concerns [8].

III .TYPES OF CLOUD

3.1 Public cloud

The Public cloud is available for public use alternatively for a large industry and is owned by an organization selling cloud services. Customer has no visibility and control access where the computing infrastructure is hosted. The computing infrastructure is shared among any organizations.

3.2 Private cloud

Private cloud is exclusively use for an organization. The cloud probably managed by the organization or third party. Private clouds are more costly and more secure when compared to public clouds. Private clouds may be either on or off premises. Externally hosted private clouds are also only used by one organization, but are hosted by third party specializing in cloud infrastructure.

3.3 Hybrid Cloud

This combines private community of public where those clouds retain their unique identities, but are bound together as a unit. A related term is Cloud Bursting. In Cloud bursting organization is use their own computing infrastructure for common usage, but access the cloud for high load requirements. Hybrid cloud may offer standardized or proprietary access to data and applications, as well as an application portability.

3.4 Community cloud

This is cloud in which the cloud has been organized to serve a common function or purpose. For example one organization or for several organization, but they share common concerns such as their mission, security, policies, regulatory compliance.

IV. CLASSIFICATION BASED UPON SERVICE PROVIDER

4.1 Infrastructure as a service

Infrastructure as a service involve offering hardware related services using the principles of cloud computing. This service provides a virtual-machine, virtual storage, disk image library, virtual infrastructure, raw block storage, and file or object storage, load balancer, IP addresses, firewalls, virtual local area networks and software providers supply these resources on-demand from their large pools installed in data centres bundles.

4.2 Platform as a Service

Cloud providers provide a computing platform, typically inclusive of programming language execution environment, operating system, and database and web server. Application developers can evolve and run their software solutions on a cloud platform without the cost and insolubility of buying and managing the basic hardware and software layers. The service provider manages the cloud infrastructure, the operating systems and the enabling software.

4.3 Software as a service

This includes a software offering to the cloud users. Users can access a software application hosted by the cloud vendors on pay-per-use basis. In the business model using software as a service, users are provided with access to application software and databases. This service is a complete operating environment with applications, management, and the user interface .Cloud providers manage the infrastructure and platforms that run the applications. Software as service providers generally price applications using a subscription fee [1]. A more granular classification on the basis of service provided listed below is below

- Storage-as-a-service
- Database-as-a-service
- Information-as-a-service
- Process-as-a-service
- Application-as-a-service

V. SECURITY ISSUES WITH CLOUD

Organizations use the Cloud in a variety of different service models (software as a service, platform as a service, and infrastructure as service) and deployment models (Private, Public, Hybrid, and Community). There is a number of security issues/concerns associated with cloud computing but these issues fall into two broad categories: security issues faced by cloud providers (organizations providing software, platform,

or infrastructure as a service via the cloud) and security issues faced by their customers (companies or organizations who host applications or store data on the on the cloud). The responsibility goes both ways, however: the provider must ensure that their infrastructure is secure and that their clients' data and applications are protected while the user must take measures to fortify their application and use strong passwords and authentication measures.

When an organization elects to store data or host applications on the public cloud, it loses its ability to have physical access to the servers hosting its information. As a result, potentially business sensitive and confidential data is at risk from insider attacks. According to a recent Cloud Security Alliance Report, insider attacks are the third biggest threat in cloud computing. Therefore, Cloud Service providers must ensure that thorough background checks are conducted for employees who have physical access to the servers in the data center. Additionally, data centers must be frequently monitored for suspicious activity [3].

In order to conserve resources, cut costs, and maintain efficiency, Cloud Service Providers often store more than one customer's data on the same server. As a result there is a chance that one user's private data can be viewed by other users (possibly even competitors). To handle such sensitive situations, cloud service providers should ensure proper data isolation and logical storage segregation.

The extensive use of virtualization in implementing cloud infrastructure brings unique security concerns for customers or tenants of a public cloud service. Virtualization alters the relationship between the OS and underlying hardware - be it computing, storage or even networking. This introduces an additional layer - virtualization - that itself must be properly configured, managed and secured. Specific concerns include the potential to compromise the virtualization software, or "hypervisor". While these concerns are largely theoretical, they do exist. For example, a breach in the administrator workstation with the management software of the virtualization software can cause the whole data center to go down or be reconfigured to an attacker's liking [6].

VI. CONCLUSION

Cloud computing builds on decades of research in virtualization, distributed computing, utility computing, and, more recently, networking, web and software services. Cloud computing provide infrastructure, platform, and software as services. These services are using pay-as-you-use model to customers, regardless of their location. Cloud computing is a cost effective model for provisioning services and it makes IT management easier and more responsive to the changing needs of the business.

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