IRACST - International Journal of Computer Science and Information Technology & Security (IJCSITS), Vol. 4, No. 6, Nov-Dec 2014

COMMUNICATION CHALLENGES AND ISSUES IN CLOUD COMPUTING TECHNOLOGY

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Abstract— ***In recent years, Cloud Computing has come up with new paradigm in the services over the internet. Cloud Computing is build with shared infrastructure. Resource sharing infrastructure plays important role in Cloud Computing. IT industries have huge opportunities in Cloud Computing environment. Cloud Computing is a service-based architecture within an infrastructure level. With the help of Cloud Computing technology the clients can concentrate on their business rather than spending time to manage their business process and they can pay only for the resource they use. This paper explores the communication infrastructure of Cloud Computing and also describes about the challenges and issues in Cloud Computing. Main challenges to be concentrated in Cloud environment is their privacy and security issues. Even though the Cloud technology has a great development, there still remain a few areas to be addressed in future. Cloud Computing has proven a major success and focusing to reduce management overhead.***

Keywords- ***Cloud Computing, Communication infrastructure in Cloud Computing, Issues and Challenges in Cloud Computing.***

I. INTRODUCTION

Cloud Computing is also known as internet-based computing. Cloud Computing emerge into the environment when computer systems started to share the resource and applications remotely. Some of the most popular companies using Cloud Computing technology are Google, Microsoft.

Cloud Computing Services varies based on the requirement of the users. There are three important services provided by Cloud Computing they are:

SaaS (Software as a Service): The end user can access and use the services hosted in the cloud. Example: Email, Virtual Desktop.

PaaS (Platform as a Service): The end user can access into the cloud to deploy their own software. They need not to manage the operating system and network access. Example: Database, Web Server.

Iaas (Infrastructure as a Service): The end user can manage the operating system, network connectivity but cannot control the cloud infrastructure. Example: Storage network, Virtual Machine.

II. CLOUD COMPUTING INFRASTRUCTURE

Computing is a process of configuring, manipulating and accessing the applications online.

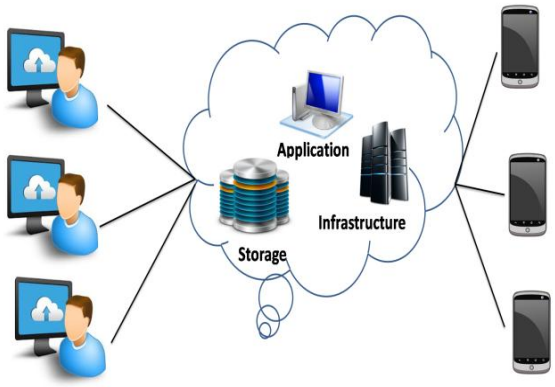

Figure: 1 Cloud Computing Infrastructures

. Cloud computing infrastructure is based on several models they are: Private Cloud, Community Cloud, Public Cloud and Hybrid Cloud.

A. Private Cloud

Private cloud allows the users to access the system and service within an organization. It is made for single enterprise. It is more secure

B. Public Cloud

The cloud service provider will allow the user or public to access the cloud infrastructure. It is less secure. This is larger than the enterprise cloud.

C. Community Cloud

Community cloud shares the cloud infrastructure with many organizations with similar requirements.

D. Hybrid Cloud

Hybrid cloud is a combination of public and private cloud. Hybrid Cloud technique increases the flexibility of the computer.

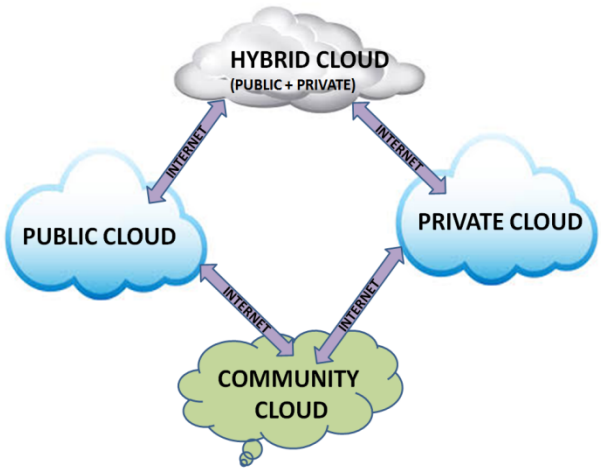

Figure 2 Cloud Computing Model

III. CLOUD COMPUTING ADVANTAGES

- Maintain large amount of data in a cloud infrastructure.
- Cloud Computing technology is very flexible to adapt all the changes in the business environment.
- When compared to traditional computing, cloud computing is less expense.
- Application can be configures and manipulated at any time.
- Resources in the Cloud can be used without interacting with the service provider

IV. CHALLENGES IN CLOUD COMPUTING TECHNOLOGY

A. Security and Privacy

In cloud computing data are managed by third-party so storing and securing data is a most challenging aspect of cloud computing. This issues slow down the deployment of cloud service.

B. Data Recovery

Cloud service provider should aware of the data duplication, capacity and performance management of the infrastructure.

C. Management Capabilities

Cloud Computing require more potential to improve the load balancing and scalability of the data management.

D. Compliance Restriction

It is necessary to provide data center and storage are within the country, so it is a big challenge maintaining Cloud Computing Environment.

E. Lock-In System:

The user cannot shift one Cloud Service Provider (CSP) to other service provider. This leads to dependency.

F. Isolation Failure

Due to failure in the isolation mechanism it is difficult to separate the storage and memory.

V. COMMUNICATION SERVICES IN CLOUD COMPUTING

Cloud Computing services can provide new capabilities to business applications. ERP (Enterprise Resource Management) and CRM (Customer Relationship Management) are the best example for cloud computing communication service.

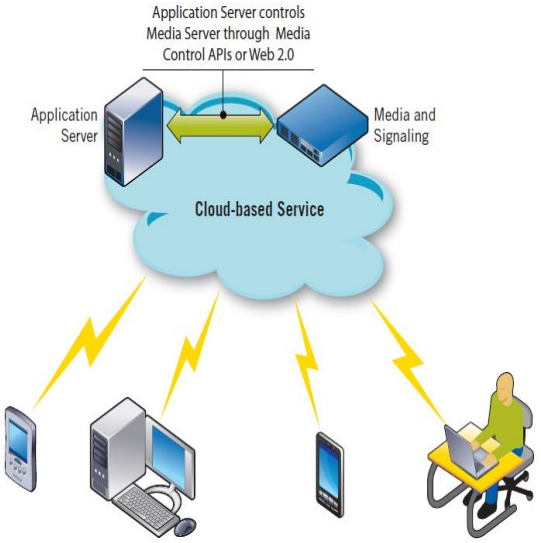

Figure: 3 Accessing the communication capabilities in Cloud infrastructure.

The cloud computing environment has the capability to support the business to deploy the services and access from outside or within the cloud. The communication issues can be handled with the help of Web API and media control API. Fig 5.1 is an example of accessing service in Cloud with Web API and media API.

To increase the scalability of cloud computing, the communication software should be capable of running in all environments.

VI. CONCLUSION

Cloud Computing has a rapid development in many technologies which includes Virtualization, mobile computing, networking, web services. Etc,. As it is a based on shared-infrastructure it reduces the information management overhead in the business environment. This paper discusses the infrastructure of cloud computing, its communication services and challenges in the cloud computing technology. Some of the main issues researchers should focus in future are security and privacy of the cloud computing.

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