Cloud Computing: Brief Overview

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Abstract—In the current scenario, Cloud computing provides the biggest tool for proving computing facility. Instead of purchasing the software and infrastructure on whole, cloud computing provides the ability of pay as you use feature. Though it’s a new paradigm in the field of computing, its definitions are given differently in different studies. Some of cloud computing characteristics are also identified. This paper further talks about the three layered architecture, deployment models and service models of cloud computing.

Keywords—Cloud Computing, Ubiquitous, pay as use, private cloud, public cloud

I. INTRODUCTION

Cloud computing is a recent trend in IT that moves computing and data away from desktop and portable PCs into large data centres. It refers to applications delivered as services over the Internet as well as to the actual cloud infrastructure [1].

1. Cloud computing is a term used to describe a paradigm for delivery of computing services to users on a pay-as-you-go basis. In this paradigm, users utilize the Internet and remote data centres to run applications and store data. [2]

2. Cloud computing provides robust computational power, and the customer can economically access to large amount of computing resources with a “pay-per-use” [3].

3. A Cloud is a type of parallel and distributed system consisting of a collection of interconnected and virtualised computers that are dynamically provisioned and presented as one or more unified computing resources based on service-level agreements established through negotiation between the service provider and consumers.[ 4]

4. As per definition of NIST, Cloud computing is a model for enabling ubiquitous, convenient, on-demand network access to a shared pool of configurable computing resources (e.g., networks, servers, storage, applications, and services) that can be rapidly provisioned and released with minimal management effort or service provider interaction.[5]

One of the first attempts to establish a detailed ontology of cloud in explained in [8].

II. CLOUD ARCHITECTURE

A cloud comprises processing, network, and storage elements, and cloud architecture consists of three abstract layers.

1. Infrastructure is the lowest layer and is a means of delivering basic storage and compute capabilities as standardized services over the network. Servers, storage systems, switches, routers, and other systems handle specific types of workloads, from batch processing to server or storage augmentation during peak loads.

2. The middle platform layer provides higher abstractions and services to develop, test, deploy, host, and maintain applications in the same integrated development environment.

3. The application layer is the highest layer and features a complete application offered as a service

Actors: Service Provider and Infrastructure Provider [12]

![Fig 4 Service & deployment model of Cloud Computing](image-url)
III. APPLICATIONS OF CLOUD COMPUTING

1. the most common form of cloud applications are called Software as-a-Service (SaaS) in which a company makes a software available over the web for users to pay for in some form or another. Examples of popular SaaSs include financial software, document software [6]
2. Conference Management System [9]
3. Cloud Infrastructure for providing tools as service is explained in [17]

IV. SERVICE MODELS

1. Software as Service: The capability provided to consume is to use the provider’s application running on a cloud infrastructure. The applications are accessible from various client devices through either a thin client interface as browser program interface. Consumer does not control underlying cloud infrastructure including network, server, and OS, storage or application capacity with an exception to some limited application settings.
2. Platform as service: Capability provided to consumers is to deploy too cloud infrastructure, consumer created or acquired applications created using programming languages, library, service and tools supplied by provider. Consumer has control over deployed applications and configuration setting for application hosting environment
3. Infrastructure as service: Provision processing, Storage, network and other fundamental computing resources where consumer is able to deploy and run arbitrary software which include OS and application. High control over OS, storage and limited control over networking components.

V. DEPLOYMENT MODEL

1. Private Cloud: A collection of computing resources, storage resources ad cloud technologies owned by an organization for its private use.
   - Advantages :Organization has full control of all resources related to cloud infrastructure
   - Disadvantage :Organization has not only to invest on computing and storage but also in software and maintenance
2. Public cloud: Resources maintained by different organization and resources are offered for external users.
   - Advantage: Organisation itself not has to take care of cloud infrastructure and operational activities.
   - Disadvantage :Completely dependent upon other business entities
3. Virtual private cloud:
   - On top of private cloud
   - Customised network topology ad security settings.
4. Community cloud: Multiple collaborative organisations can have some common requirements of a software system and can share their infrastructure to have more reliable and cost effective infrastructure.

IV. CONCLUSIONS

The paper gives a detailed description of Cloud and Cloud Computing, its characteristics, applications, deployment and service models. Cloud Computing has various definitions given in various sources. The main characteristics of cloud computing is its ability to pay as you use. Different types of service models are Platform as service, Software as service and infrastructure as service. Also the types of clods i.e. Private, Public, Virtual private and community cloud along with its advantages and disadvantages are also discussed. Towards the end some of the bottlenecks in this new field of computing are enlisted.

REFERENCES

[4] Rajkumar Buyya, Chee Shin Yeo and Srikrumar Venugopal, “Market Oriented cloud computing: Vision, hype and reality for delivering IT services as computing utilities