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Cloud Computing: Rapidly Developing Accounting Field

Abhishek K. Gandhi
Assistant Professo
(Accountancy)
Vanita Vishram Women's College of Commerce,
Surat, Gujarat (India)

Dr. Manisha M. Barad,
Assistant Professor
Department of Commerce and Management
K.S.K.V.U.,
Bhuj, Gujarat (India)

Abstract: ***Cloud computing is becoming a buzzword. Cloud computing is the evolution of a variety of technologies that have come together to change an organization's approach for building an IT infrastructure .The paper discusses the most discussed topic nowadays 'cloud computing'. The paper explains the cloud computing concepts, characteristics, types, advantages and disadvantage, services provided by cloud computing and different service providers. The terms 'cloud computing' and 'working on the cloud' refer to performing computer takes using services delivered entirely over the internet. Cloud computing is a movement away from applications needing to be installed on an individual's computer towards the applications being hosted online. (The 'cloud' refers to the internet and was inspired by technical flow charts and diagrams, which tend to use a cloud symbol to represent the internet.)Cloud computing will promote the use of shared resources and when we are sharing the resources among different users it will definitely lower the cost and will help in keeping the environment clean. We need to strap up this technology in our daily lives by creating many applications on cloud.***

Keywords: Cloud Computing, Iaas, PaaS, SaaS.

I. INTRODUCTION

With the great leap forward of web technologies during the past few years, we have witnessed the birth of Cloud Computing, Global competition is challenging the organizations to come up with more innovative ideas to order to stay competitive .The term 'cloud computing' refers to computing services available to anyone online. Cloud computing is a style of computing in which dynamically scalable and often virtualized resources are provided as a services over the Internet.

II. RESEARCH METHODOLOGY AND RESEARCH DESIGN

I have done descriptive study .Research methodology used for the study has been kept very simple.

Research Tools:

I have used secondary data. Have collected data from the internet from various websites, journals, and magazines.

III. OBJECTIVE OF THE STUDY

To study what is Cloud Computing (it's Characteristics, scope, advantages, disadvantages, functions, implementation and models) and Cloud Computing is shaping organization in a technology driven environment.

Definition:

Cloud Computing is a general term used to describe a new class of network based computing that takes place over the Internet. Cloud Computing is distributed computing on Internet or delivery of computing service over the internet. For eg.Yahoo, Gmail, Hotmail, Instead of running an-e-mail programme on your computer, you log in to awe e-mail account remotely. The software and storage for your account doesn't exist on your computer-it is on the service's computer cloud.

IV. ESSENTIAL CHARACTERISTICS OF CLOUD COMPUTING

1. On Demand self service
2. Broad network access
3. Resource pooling
4. Repid Elasticity
5. Measured service
6. Multi Tenacity

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7. Ubiquitous network
8. Flexible Pricing-Pay per use

1. On demand self services:

Computer services such as email, applications, network or server service can be provided without requiring human interaction with each service provider. Cloud service providers providing on demand self services include Amazon Web Services (AWS), Microsoft, Google, IBM and Salesforce.com. New York Times and NASDAQ are examples of companies using AWS (NIST).Gartner describes this characteristic as service based.

2. Broad network access:

Cloud Capabilities are available over the network and accessed through standard mechanisms that promote use by heterogeneous thin or thick client platforms such as mobile phones, laptops and PDAs.

3. Resource pooling:

The provider's computing resources are pooled together to serve multiple consumers using multiple tenant model with different physical and virtual resources dynamically assigned and reassigned according to consumer demand .The resources include among others storage, processing, memory, network bandwidth, virtual machines and email services. The pooling together of the resources builds economics of scale (Gartner)

4. Rapid elasticity:

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

5. Measured services:

Cloud computing resource usage can be measured, controlled and reported providing transparency for both the provider and the consumer of the utilised service. Cloud computing services use a metering capability which enables to control and optimize resource use. This implies that just like air time, electricity or municipality water IT services are charged per usage metrics-pay per use. The more you utilize the higher the bills. Just as utility companies sell power to subscribers, and telephone companies sell voice and data services, IT services such as network security management, data centre hosting or even departmental billing can now be easily delivered as a contractual service.

6. Multi Tenacity:

Is the 6th characteristics of cloud computing advocated by the cloud security Alliance. It refers to the need for policy driven enforcement, segmentation, isolation, governance, service levels and chargeback/billing models for different consumer constituencies. Consumers might utilize a public cloud provider's service offerings or actually be from the same organisation, such as different business units rather than distinct organizational entities, but would still share infrastructure.

7. Ubiquitous Network:

The "no-need to know" in terms of the underlying details of infrastructure, applications interface with the infrastructure via the API's

8. Flexible Pricing – Pay per use

The "Pay as much as used and needed" type of utility computing and the "always on! Anywhere and any place" type of network-based computing. The "flexibility and elasticity" allows these systems to scale up and down at will utilising the resources of all kinds CPU, storage, server capacity, load balancing and databases.

V. CLOUD SERVICE MODELS

There are 3 service models as given below:

1. Software as Service (SaaS)

From end user's Point of view -- Apps are located in the cloud. Software experiences are delivered through the Internet. Required software, Operating System and network are provided. The software applications like CRM, Office Suite, E-Mail etc. Are offered as a service through the internet, instead of a shrink wrapped software on a physical medium, which is the norm in the traditional desktop world. The applications are hosted on a highly scalable infrastructure and it is offered over the internet. Users can access it using an ordinary web browser, without any need to install software in their local computer. Computers like Google, Zoho, Sales force, Microsoft, Word press offer their applications as a service to the end users.

2. Platform as a Service (PaaS)

Operating System and network is provided.

From Developer's point of view –

Cloud providers offer an Internet-based platform to developers who want to create services but don't want to build their own cloud. Some vendors are offering application development platform as a service. Developers can code the applications and upload

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it to scale their apps without worrying about building the infrastructure. It helps developers to scale their apps without worrying about building the infrastructure. The platform scales automatically based on the resource needs of the app, without any efforts from the developer. Services like Google App Engine, Bungee Connect and Force.com are its examples.

3. Infrastructure/Hardware as a Service (IaaS)

Just Network is provided. Cloud providers build data centres Power, Scale, Hardware, Networking, storage, distributed systems etc. Cloud users rent storage, computation and maintenance from cloud providers. Vendors offer computing infrastructure as a service to end users. The term Hardware as a Service is a bit of a misnomer. It is actually computing power offered through a virtualized environment rather than a physical hardware. This service is offered either as raw computing power or storage or both. Some examples of Service offered in this category include Amazon's EC2 and S3, Mozy, GoGrid etc.

VI. COMPONENTS OF CLOUD COMPUTING

1. **Clients:** A Cloud client consists of computer hardware and computer software which relies on cloud computing for application delivery, or which is specifically designed for delivery of cloud services and which, in either case is essentially useless without it.

2. **Services:** A Cloud Service includes "products, services and solutions that are delivered and consumed in real-time over the Internet. For E.g.: Web Services which may be accessed by other cloud computing components and software.

3. **Applications:** A Cloud Application leverages the Cloud in software architecture, often eliminating the need to install and run the application on the customer's own computer, thus alleviating the burden of software maintenance, ongoing operation and support.

4. **Platform:** A cloud platform, such as Platform as a Service, the delivery of a computing platform and solution stack as a service, facilitates deployment of applications without the cost and complexity of buying and managing the underlying hardware and software.

5. **Storage:** Cloud storage involves the delivery of data storage as a service, including database like services often billed on a utility computing basis.

6. **Infrastructure:** Cloud Infrastructure, such as Infrastructure as a service is the delivery of computer infrastructure, typically a platform virtualization environment as a service.

VII. TYPES OF CLOUD STORAGE

1. **Public Cloud:** Computing Infrastructure is hosted by cloud vendor at the vendor's premises and can be shared by various organisations E.g.: Amazon, Google, and Microsoft.

2. **Private Cloud:** Computing Infrastructure is dedicated to a particular organisation and not shared with other organisations. It is more expensive and more secured when compared to public cloud. E.g.: HP data centre, IBM, Sun,

3. **Community Cloud:** Shared Infrastructure by several organisations which have shared concerns

4. **Hybrid Cloud:** Usage of both public and private together is called hybrid cloud.

VIII. ADVANTAGES

1. Lower Computer Costs:

You do not need a high-powered and high-priced computer to run cloud computing's web-based application. Since applications run in the cloud, not on the desktop PC, your desktop PC does not need the processing power or hard disk space demanded by traditional desktop software. When you are using web-based applications, your PC can be less expensive, with a smaller hard disk, less memory, more efficient processor. In fact, your PC in this scenario does not even need a CD or DVD drive, as no software programs have to be loaded and no document filed need to be saved.

2. Improved Performance:

With few large programs hogging your computer's memory, you will see better performance from your PC. Computers in a cloud computing system boot and run faster because they have fewer programs and processes loaded into memory.

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3. Reduced Software Costs:

Instead of purchasing expensive software applications, you can get most of what you need for free-is ! Most cloud computing applications today, such as the Google Docs. Suite. Better than playing for similar commercial software which alone may be justification for switching to cloud applications?

4. Instant Software Updates:

Another advantage to cloud computing is that you are no longer faced with choosing between obsolete software and high upgrade costs. When the application is web-based, updates happen automatically available the next time you log into the cloud. When you access a web-based application, you get the latest version without needing to pay for or download an upgrade.

5. Improved document format compatibility:

You do not have to worry about the documents you created on your machine being compatible with other users' application or OSes. There are potentially no format incompatibilities when everyone is sharing documents and applications in the cloud.

6. Unlimited Storage Capacity:

Cloud Computing offers virtually limitless storage. Your computer's current 1T BYTE hard drive is small compared to the hundreds of P bytes available in the cloud.

7. Increased Data reliability:

Unlike desktop computing, in which if a hard disk crashes and destroys all your valuable data, a computer crashing in the cloud should not affect the storage of your data. If your PC crashes, it will still be accessible.

8. Universal Document Access:

That is not a problem with cloud computing, because you do not take your documents with you. Instead, they stay in the cloud, and you can access them whenever you have a computer and an Internet connection. Documents are instantly available from wherever you are.

9. Latest Version Availability:

When you edit a document at home, that edited version is what you see when you access the document at work. The cloud always hosts the latest version of your documents as long as you are connected, you are not in danger of having an outdated version.

10. Easier Group Collaboration:

Sharing documents leads directly to better collaboration. Many users do this as it is an important advantage of cloud computing. Multiple users can collaborate easily on documents and projects.

11. Device Independence

You are no longer tethered to a single computer or network. Changes to computers, applications and documents follow you through the cloud. Move to a portable device and your applications and documents are still available.

IX. DISADVANTAGES

1. Requires a Constant Internet Connection:

Cloud computing is impossible if you cannot connect to the Internet. Since you use the Internet to connect to both your applications and documents, if you do not have an Internet Connection you cannot access anything, even your own documents. A dead Internet connection means no work and in areas where internet connections are few or inherently unreliable, this could be a deal-breaker.

2. Does not work well with low-speed connections:

Similarly, a low-speed Internet connection, such as that found with dial-up services, makes cloud computing painful at best and often impossible. Web-based applications require a lot of bandwidth to download, as do large documents.

3. Features might be limited:

This situation is bound to change, but today many web-based applications simply are not as full-featured as their desktop-based applications. For E.g.: you can do a lot more with MS Power Point than with Google's Presentation's web-based offering.

4. Can be slow:

Even with a fast connection, web-based applications can sometimes be slower than accessing a similar software program on your PC. Everything about the program, from the interface to the current document, has to be sent back and forth from your computer to the computers in the cloud. If the cloud servers happen to be backed up at that moment, or if the Internet is having a slow day, you would not get the instantaneous access you might expect from desktop applications.

5. Stored data might not be secured:

With cloud computing, all your data is stored on the cloud. The question is: How much secure is the cloud?
Can unauthorised users gain access to your confidential data?

6. Stored data can be lost:

Theoretically, data stored in the cloud is safe, replicated across multiple machines. But on the off chance that your data goes missing, you have no physical or local backup. Put simply, relying on the cloud puts you at risk if the cloud gets you down.

7. General Concerns:

Each Cloud systems uses different protocols and different APIs and may not be possible to run application between clouds based systems. Amazon has created its own DB system and workflow system. So your normal applications will have to be adapted to execute on these platforms.

X. CONCLUSION

Cloud Computing is the fastest growing part of network based computing. Cloud Computing provide a super-computing power. It provides tremendous benefits to customers of all sizes. The applications and the data served by the cloud are available to broad group of user, cross-enterprise and cross-platform. We need to strap up this technology in our daily lives by creating many applications on cloud.

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