# Major Project Report

# on

# Evolution & Effect of Cloud Computing on the Industry


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# CERTIFICATE

This is to certify that the project report titled **"Evolution & Effect of Cloud Computing on the Industry"** is a bonafide work carried out by **Mr. Ankur Bhat** of **EMBA 2020-22** and submitted to Delhi School of Management, Delhi Technological University, Bawana Road, Delhi-42, to the best of my knowledge, in partial fulfillment of the requirement for the award of the Degree of Executive Masters of Business Administration.

**Signature of Guide**
**(DSM, DTU)**

**Signature of HOD**
**(DSM, DTU)**

# DECLARATION

I **Ankur Bhat**, student of **EMBA 2020-22** of Delhi School of Management, Delhi Technological University, Bawana Road, Delhi - 42, hereby declare that the Major Project Report **"Evolution & Effect of Cloud Computing on the Industry"** submitted in partial fulfillment of Degree of Masters of Business Administration is the original work conducted by me.

The information and data given in the report is authentic to the best of my knowledge.

This report is not being submitted to any other University, for award of any other degree, Diploma or Fellowship.

**Place:** **Ankur Bhat**

**Date:**

# ACKNOWLEDGEMENT

I would like to express my sincere gratitude towards my Guide, Dr. P. K. Suri (Professor, Delhi School of Management, DTU) for his support and valuable guidance throughout the duration of the project. I thank him for the constant encouragement and support at every stage.

My sincere gratitude goes out to my colleagues whose participation in the project gave many valuable inputs for its completion.

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## ABSTRACT

Thoughts are required to keep up with the inevitable pace of transformation. The majority of organizations adopt virtualization to reduce their computing expenditures. The growth of Cloud Computing has evolved from the search for cheaper computing costs. Cloud technology computing improves computer performance by reducing administrative & infrastructural costs while boosting utilization. Cloud technology is divided into two types: SaaS and Utility Computing. Cloud technology & computing is still in its youth, and it is a comparatively recent corporate technology. As a consequence, the vast majority of companies are unwilling to use it.

Cloud technology & computing is still in its infancy, and it is a relatively novel knowledge for businesses. Consequently, the majority of commerce are hesitant to implement it. This research study looks at the financial and security implications of this problem for businesses. In this article, I address the cost and security advantages and downsides that a company may face while adopting Cloud Computing.


## OBJECTIVES OF THE STUDY:

1. To present an overview of Cloud Computing
2. To study the influence of cloud computing technologies on a business.
3. To investigate the factors that promote or dissuade a company from using cloud computing technologies, such as cost and security.

## METHODOLOGY

1. There are 2 key sources for the investigation: secondary along with primary. The data for this study endeavor is gathered from both sources. One of the fundamental tenets of data gathering is to deplete all secondary data before doing primary research. To create interpretations, the same will be evaluated.

2. Any publications connected to the study subject will be extensively searched in key journals and sessions.

3. In addition, a search for the key terms was conducted in peer-reviewed publications.

# Table of Contents

# Chapter 1

# INTRODUCTION

Picture a scenario where users of today's internet computers don't have to run, install, or keep their applications or data with their own computers; imagine a world where all of your data and information is stored in the cloud (Internet).

"The cloud" is a well-worn analogy for the Internet, but when paired with "computer," the meaning expands and blurs. Cloud technologies & computing is defined by some researchers as a modernized form of computing: fundamentally V-servers available over the Internet. Others take it a step further, claiming that whatever you consume outside of your gate is "in the cloud," even traditional outsourcing.

When you ponder what we constantly need: a mechanism to increase volume or add features on the fly before investing in new apparatus, training new employees, or licensing new SW, cloud technology comes into focus. Cloud refers to any subs-based or compensation service that expands ICT's current capabilities in real time through the Internet.

Cloud technologies & computing is still in its infancy, with a disparate group of different scale of companies offering anything from full-fledged programs to storage and spam filtering. Yes, utility’s-style infrastructure providers are included, but same are SaaS orgs. Presently, IT must connect to cloud-based services one at a time, but cloud computing collectors and integrators are on the rise.

# Chapter 2

# RESEARCH METHODOLOGY

For the research study, there are two major data sources: secondary and primary. Primary and secondary source were employed to gather data for this research project. Before performing a main research, one of the chief laws of data gathering is to deplete all secondary data sources. Secondary data has the advantage of already existing and being readily accessible. Secondary data is very adaptable and may be utilized for a variety of reasons. To gather secondary data, the researcher first looked through publications in the literature that were connected to the study goals. Any publications relating to the study subject were rigorously searched in key journals and sessions. In addition, a scan for the key terms was conducted in peer-reviewed publications. This search lead to papers in other journals that were relevant to the topic. A survey was done utilizing a questionnaire to undertake an empirical inquiry. The items that would have been comprised in survey were chosen initially. The survey was then performed for gathering data, which was then gathered and analyzed to discover answers to the study goals. The questionnaire was created using literature to elicit topics relevant to the study's goals. In order to fine-tune the questionnaire, it was also done before in a pilot research. A sample consisted of four persons, including coworkers and an industry guide, participated in the pilot research to see how effectively the questionnaire was structured and comprehended. Some items were rephrased to increase clarity depending on the research study and participant input.

## 2.1 The study's objectives

1. To investigate impact of cloud technology computing technologies over a business.

2. To investigate the variables that promote or dissuade a company from using cloud technologies, such as price and safety/security.

## 2.2 Sample plan & sample sizing

Study was particularly intended for technical professionals who work in IT divisions since the survey is for observing the Impact of Cloud Technology, Computing on Enterprises. Because of delicacy of the matter and security concerns, the survey was

kept modest. As a result, just a few people give their opinions, thoughts, information, and experiences.

### 2.3 Limitations

– The sample size was minimal since reaching highly qualified technocrats for a poll on such a sensitive issue as Cloud Computing proved challenging.

– Various statistical approaches have been used and results have been derived as accurately as possible, with just a few assumptions made when needed**.**

### 2.4 Scope of the study:

This research analyzed the elements that would affect a company's decision to use cloud technology in India, as well as the effect of cost and security on a company's bottom line. Here are a handful of the study's most important implications.

- The findings of this research show that it is both educational and valuable for the general public as well as enterprises who employ cloud technology. They are able to comprehend the dimensions that indicate the advantages and risks of cloud computing, as well as the influence of all of these elements on an organization.

- The findings of this research also suggest that it is beneficial for a company to consider the findings of this study before using cloud computing technology.

# Chapter 3

# CLOUD COMPUTING - THE CONCEPT

Cloud Technology computing is the development and application of computer technology that is based on the Internet ("cloud") ("computing"). It's a computing model which is ascendable & elastic are delivered as a package through the public Intranet. Handlers are not based principally of, experience in, or influence above the technical infrastructure that supports them "in the cloud."

Cloud Technology computing is a concept for providing immediate access of nw to a common pool of customizable compute assets that may be speedily supplied and unconfined with no service provider contact. **(Knorr, E. (2018, October 2)).**

Cloud Technology computing refers to the use of a network of computer servers that seem to be 1 coherent computer. Cloud technologies is one of the most rapidly evolving technological trends in recent years. The purpose of using Cloud technology is to save a lot of money on IT infrastructure. This study discusses the growth of cloud services and how it has been embraced by different businesses. In today's environment, cloud hosting has been used by practically every business. This paper also looks at the technological aspects of cloud computing and how businesses are affecting in terms of price and safety.

Cloud Technology computing is the technique of storing, managing, and processing data utilizing a network of distant computers housed on the Internet rather than ON-Premises server or Local PC

Cloud Technology computing may save money on IT infra, provide scalability, self-upgrades, remote access, reliability, and skilled suppliers, among other things. Cloud computing encompasses both the apps supplied as services via the Internet as well as the gear and software in the DC that support such services. SaaS refers to the services (SaaS). Cloud refers to the gear and SW used in datacenters.

According to a recent Forrester Report, more than 70percent of total of IT budgets are spent on maintaining existing IT infrastructure rather than building new ones. Companies are turning to cloud computing to make better use of their IT funds.

Cloud computing varies from the client-server paradigm in that it provides facilities from server which are run and controlled by a client browser, without the need for a client-side program installation. Centralization allows service providers complete control over the versions of browser apps offered to clients, eliminating the need for ongoing version updates and managing individual licensing for client computing devices. IaaS, PaaS and SaaS & other contemporary technological advances, are all part of the notion, which has the consistent pattern of relying on the Internet to meet consumers' computing demands. Salesforces.com and Google company Apps are two examples of SaaS companies that offer standard business apps online that can be retrieved via a browser while the data and applications are kept on the servers.

Figure 1: Cloud Computing

Source: Knorr, E. (2018, October 2). Retrieved from infoworld.com/article/2683784/what-is-cloud-computing.html

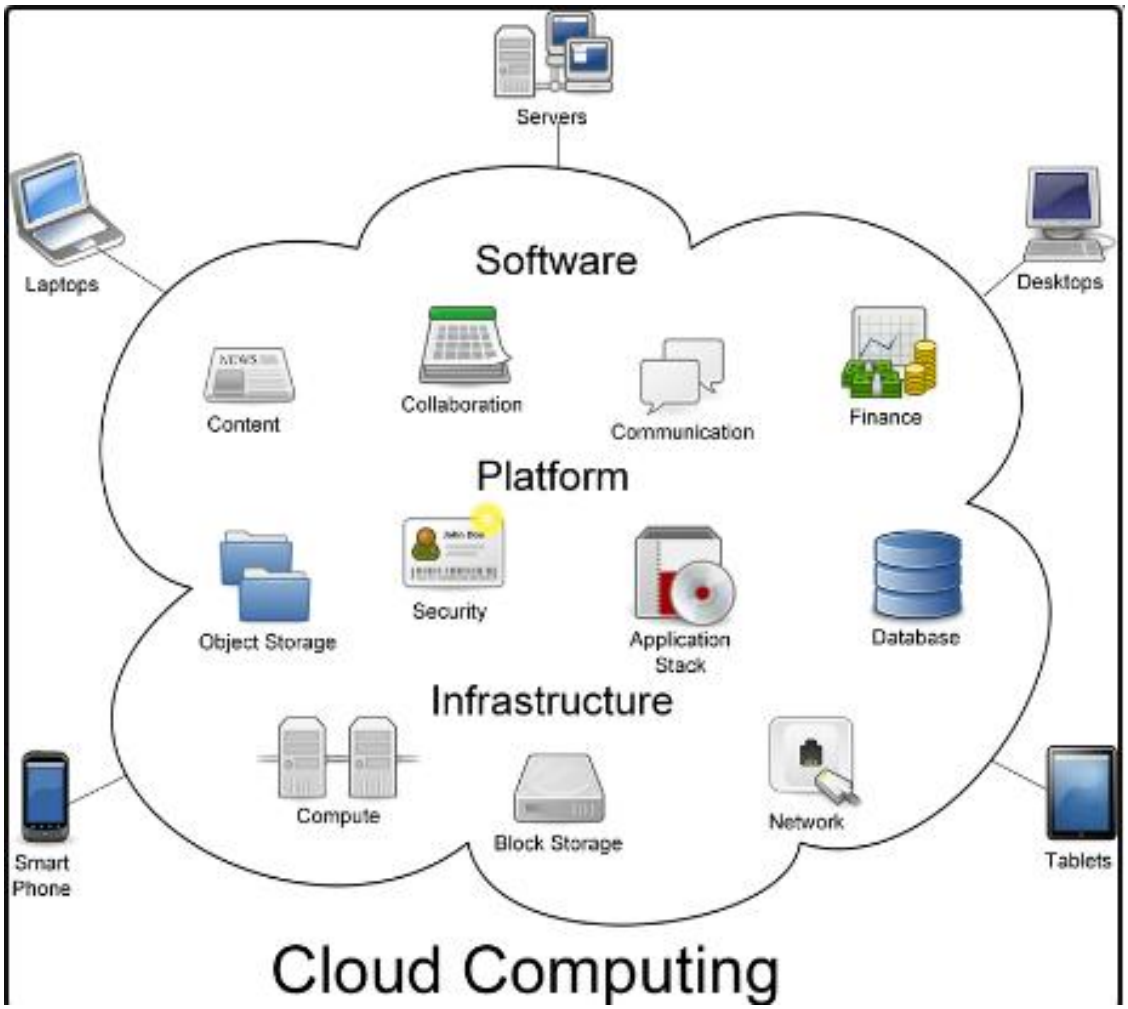
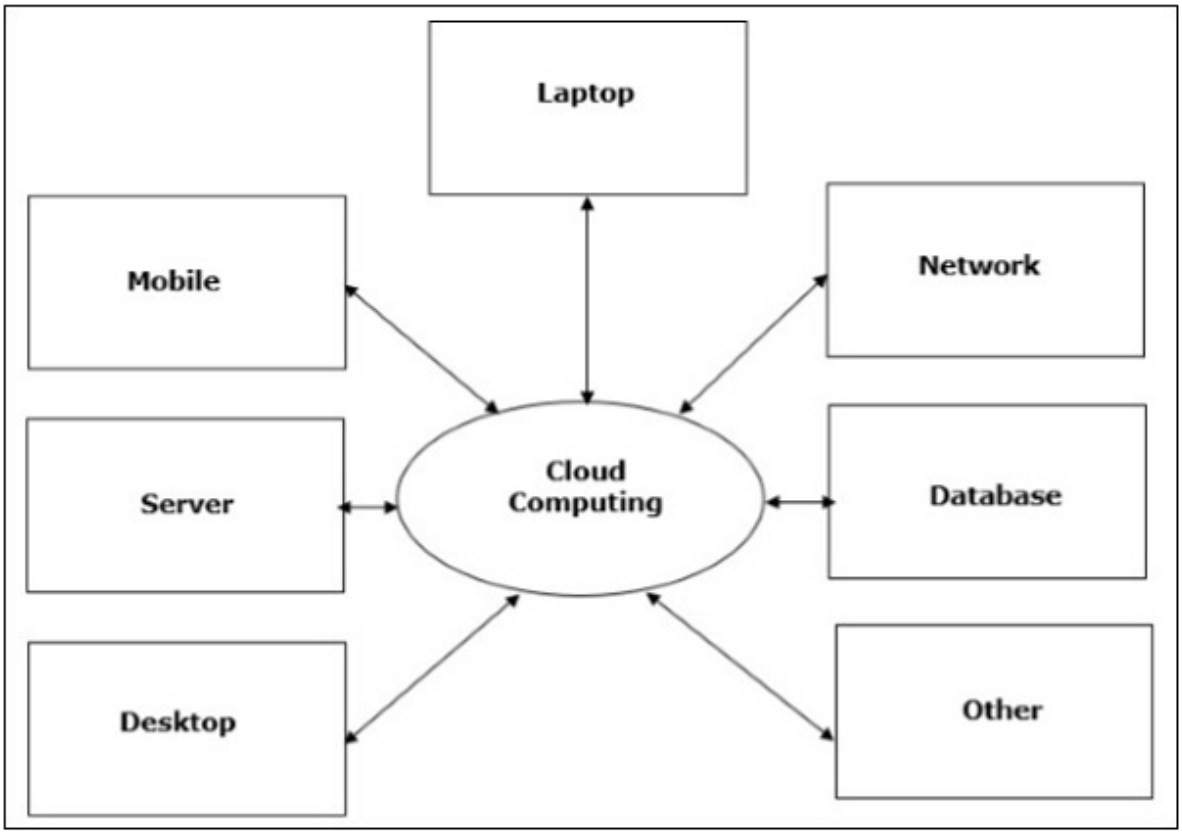


Figure 2: Cloud Computing
Source: Source: Knorr, E. (2018, October 2). Retrieved from infoworld.com/article/2683784/what-is-cloud-computing.html



### 3.1 Evaluation

Cloud Technology computing ("a form of distributed computing in which a ‘super and virtual computers' is composed of a grouping of interconnected, loosely-coupled computers acting in concert to perform very complex tasks"), utility computing ("the packaging of computational resources, such as computational and storage, as a metering system similar service to a traditional public utility such as electricity"), and autonomic computing ("packaging of computational power, such as computation and storage, as a metering system service similar to a regular public utility such as power supply ("computer systems capable of self-management").

Although many cloud technology computing installations rely on grids, have autonomous properties, cloud computing may be considered as a logical progression from the grid-utility paradigm. P2P networks, as well as volunteer computing, have viable cloud designs with little or no centralized infrastructure or pricing systems.

### 3.2 Implementation

As of 2021, the bulk of cloud computing environment is made up of dependable services offered via data centers and constructed on servers that use various degrees of virtualization technology. The services are available from any location with a network infrastructure. The Cloud looks to be a singular access point for all of a consumer's computer demands. Customers' service quality criteria must be met by commercial services, which often include SLA. Open criteria are important to cloud tech progress, and open source code have served as basis for many CL0UD services deployments.

# Chapter 4

# THE CHARACTERISTICS

## On Demand

The capacity to offer computer resources whenever the client needs them is a fundamental requirement for a cloud computing service. The computational resources are almost limitless from the customer's perspective.

Among the most wanted skills for many businesses is the ability to employ computer resources on demand since it reduces the need to plan ahead, purchase, and install resources that will be needed at some time in the future. This allows the consumer to prevent making a large upfront server expenditure. Furthermore, as compared to the old approach of owning servers, cloud technology will save money by avoiding the expenses of underutilized resources. By combining the demands of several organizations, the cloud computing provider is effectively doing what corporations did when they first began running service bureaus - the services bureau is able to reap the benefits of the impacts of resource pooling by mixing the needs of various firms.

As a result of this characteristic of on-demand computing resources, some business models have lower entry barriers, as software makers can develop apps without worrying about providing for a specific amount of clients ahead of time and then bearing the risk of better effectiveness than planned, resulting in the service not being accessible or, worse, having very few consumers and a large capital expenditure caused by buying underutilized resources.

## Pay-on-use

A novel feature of cloud technology computing is the use of a usage-based charging mechanism. The user only pays for short-term use of processing or storage, which might be metered in hours or days, transforming what would've been CAPEX into OPEX.

The notion of cloud computing is clearly linked to the concept of utility computing. In both cases, computing resources are provided on-demand, much like electricity,

water, or gas are provided by a utility company; however, in the case of computing resources, the waste product is primarily heat, and after a period of time, scrap computing equipment is produced, so the customer is effectively going to rent these computing resources. Unlike a typical leasing arrangement, in which the resources are literally placed at the customer's location, cloud technology resources are simply hosted anywhere in cloud than in a 1 physical location. Furthermore, unlike water which are accessible for later use when they are not utilized, not utilizing processor cycles in a computer wastes these cycles since they would not be available for future use. As a result, accepting business that uses all (or almost all) of these cycles is favorable for a cloud provider.

**Rapid Elasticity**

The service provider scales down or up the resources given to suit the client's changing demands based on the specifics of a SLA. The reaction rate for the cloud hosting to adjust to the client's demands must be defined in this service level agreement. Since the C service provider does not have countless resources, depending on the SLA, the C provider must find a set of resources that satisfy the present needs of the accumulation of their consumers while meeting the numerous SLA of these customers - otherwise, the SLA may specify a punishment that the C provider must pay to these customers.

**Upgrading and maintenance**

Since, the cloud provider, rather than the client, manages the computing sources, maintenance activities are effectively outsourced. As a result, whether the commodity is hardware or software, the provider maintains and upgrades it. As a result, all repairs and replacements of the underlying HW are invisible to the client since they have no impact on their skill. While this may be true in the idyllic setup, there may be brief periods when a customer's image is moved from one hardware platform to the other in order to conduct maintenance or repair on a given physical infrastructure, during which time the customer may not have access to any of the image's resources.

# Chapter 5

# HISTORY

Cloud is a word with a lengthy tradition in telephony that has recently been embraced as an analogy for internet-based services, with a cloud shape often shown in network diagrams.

The basic notion goes back to 1961, when McCarthy suggested that "computation may eventually be structured as a public utility"; fact, it shares traits with 1961 service sections. In the early 1990s, the word "cloud" was already being used to mention to huge ATM systems. The phrase "cloud computing" began to arise around the turn of the twenty-first century, however much of the attention at the time was on SaaS.

Marc, Parker, and their colleagues founded Salesforce.com in 1999. Many consumer web site technology, such as Google and Yahoo!, were transferred to commercial applications. With their genuine business and successful clients, they also introduced the concepts of "On demand" and "SaaS." The key of SaaS is that it may be customized by the client on their own or with little assistance. Business customers have overwhelmingly praised and embraced the flexibility and speed with which applications may be developed.

Following the dot-com bubble, Amazon.com modernized their data centers and, after discovering that the novel cloud technology arch. resulting in considerable internal efficiency advantages, began offering access to schemes via AWS in 2005 on a grid computing basis.

Around the same time as the word began to acquire prominence in the mainstream press, institutions boarded on a huge cloud research effort. By mid-2009, cloud computing had become a popular issue, with a slew of events planned.

Gartnr Research reported that "organizations are shifting from company-owned devices and software to per-use service-based models," and the "projected transition to cloud technology computing will result in exponential rise in IT products in some areas while resulting in substantial reductions in other areas."

## Political issues

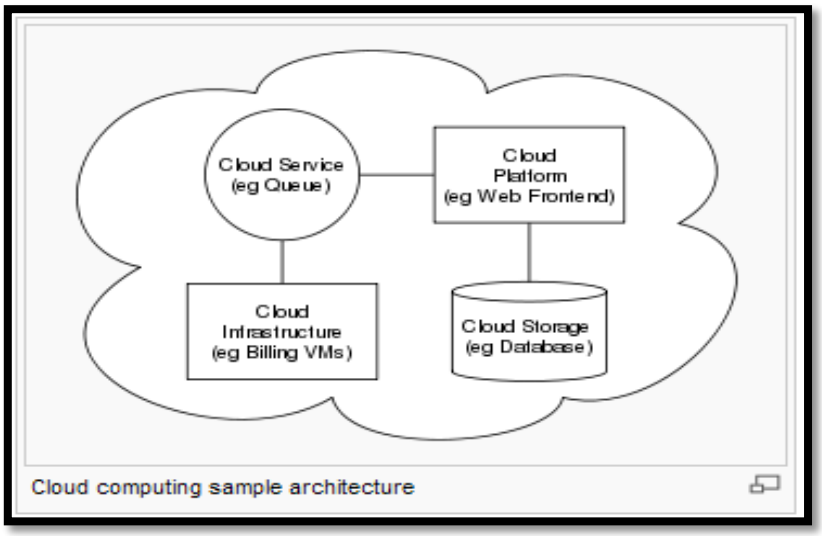
Cloud "may be the greatest kind of globalization," since it crosses multiple countries. As a result, it becomes vulnerable to complicated geopolitical issues: suppliers must comply with a plethora of governing regimes in order to serve a worldwide marketplace. This times rear to the internet days, when libertarian thinkers believed that "cyberspace was a distinguishable location calling for legislation and court institutions of its own".

# Chapter 6

# ARCHITECTURE

Cloud architecture involved in cloud computing delivery, is made up of physical equipment's and SW created by designer who usually works for just a integrators of cloud. Multiple cloud mechanisms frequently communicate with one another using application program interfaces, most commonly web based services. This is similar as UNIX principle of having several applications that each perform one thing well and collaborate through universal interfaces. The resultant systems are more controllable than their monolith counterparts because complexity is managed. Cloud architecture continues to the client, where cloud applications are accessed through browsers or software applications. The architecture of cloud storage is loosely connected, with metadata operations centralized, allowing information knobs to enlarge into the 100s, each supplying data to the apps or users independently.

Figure 3: Cloud Architecture
Source: Own Design Using MS Paint & PPt.



## 6.1 Components

| Cloud Computing Components | |
|---|---|
| | |
| **Applications** | Facebook · Google Apps · Salesforce · Microsoft Online |
| | |
| **Client** | Browser(Chrome) · Firefox · Cloud · Mobile (Android · iPhone) · Netbook (EeePC · MSI Wind) · Net top (CherryPal · Zonbu) |
| | |
| **Infrastructure** | BitTorrent · EC2 · GoGrid · Sun Grid · 3tera |
| | |
| **Platforms** | App Engine · Azure · Mosso · SalesForce |
| | |
| **Services** | Alexa · FPS · MTurk · SQS |
| | |
| **Storage** | S3 · SimpleDB · SQL Services |
| | |
| **Standards** | Ajax · Atom · HTML 5 · REST |

Figure 4: Cloud Computing Components
Source: Own Design reference from Chappell, D. (2018, August).

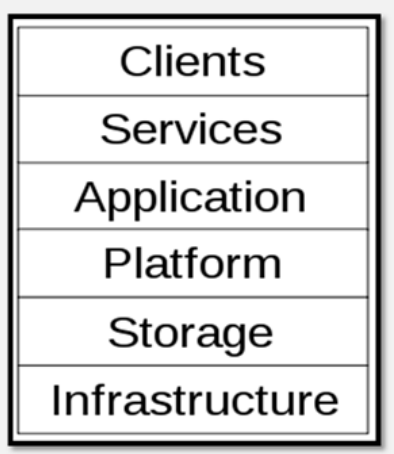



Figure 5: Cloud Computing Components
Source: Own Design reference from Chappell, D. (2018, August).

### Client

A C-client is a piece of HW or SW that depends on cloud services for delivery of apps or is especially intended for delivering cloud service, and is effectively worthless without it in any case. Some computers, phones, and other gadgets, as well as operating systems and browsers, are examples.

**Application**

Cloud app services, also known as S.a.a.S, provide service through the Public Internet, removing the need for customers to install and execute program on their own PC while also easing O&M. Persons often confuse the phrases 'SaaS' and 'cloud,' when they are really two separate concepts.

**Platform**

PaaS or cloud plat-form services (CPaaS) provide a computer platform as a service, frequently utilizing cloud infra-structure and supporting cloud apps.

**Infrastructure**

Cloud infra services, also referred as IaaS, provide computer infra as a service, often in the form of a platform virtualization environment. Customers purchase servers, SW, DC Rackspace, and NW equipment as an entirely subcontracted service rather than acquiring those possessing themselves.

Suppliers usually charge for these services on a grid calculating basis, with the amount of possessions utilized (and hence the price) reflecting the degree of activity.

**Service**

Products, services, and applications that are provided and utilized in actual through the public Internet" which is included in a cloud technology service. Web e.g "software system[s] intended to facilitate interoperable machine-to-machine interaction across a network," and they may be retrieved directly by other cloud computing mechanisms, SW (e.g., SW plus service), or end users.

**Storage**

Supply of information, especially DB services, is frequently invoiced on a cloud based basis, such as per Gbyte/month.

## 6.2 STANDARDS

Cloud standards, a number of existing, typically lightweight, open standards, have facilitated the growth of cloud computing, including:

- **Application:**
  - Communications (HTTP, XMPP)
  - Security (OAuth, Open ID, SSL/TLS)
  - Syndication (Atom)
- **Client:**
  - Browsers (AJAX)
  - Offline (HTML 5)
- **Implementations:**
  - Virtualization (OVF)
- **Platform:**
  - Solution stacks (LAMP)
- **Service:**
  - Data (XML, JSON)
  - Web Services (REST)
- **Storage:**
  - Database (Amazon Simple DB, Google App Engine Big Table Datastore)
  - Network attached storage (MobileMe iDisk, Nirvanix CloudNAS)
  - Synchronization (Live Mesh Live Desktop component, MobileMe push functions)
  - Web service (Amazon Simple Storage Service, Nirvanix SDN)

Figure 5.1: Cloud Computing Standards
Source: Chappell, D. (2018, August).

# Chapter 7

# CLOUD COMPUTING SERVICE MODELS

Cloud computing technology may be divided into three categories based on the kind of service it provides. It's vital to remember that SaaS is based on PaaS, whereas IaaS is built on IaaS, as illustrated in Figure. As a result, this isn't an exclusive technique to categorization; rather, it refers to the quality of service provided.

Figure 6: Cloud Computing Service Models
Source: Cloud Tech website


Figure: Cloud computing service models

### Infrastructure as a Service

IaaS provides raw storing space, processing, or NW resources to customers so they may run and execute whatever OS, apps, or SW they choose. The cloud client cannot regulate the SW circulation to a particular HW platform or modify the underlying infra settings, but he or she may manage the software that has been installed. E.g. AWS.

### Platform as a Service

In this case, the C- provider not lone supplies the HW, also toolset and a variety of program languages that may be used to create higher apps i.e. SW apps are presented as part of a plat-form. PaaS user are usually SW developing guys who store their apps on the platform and then distribute them to last users. – E.g. FB Plat-form

### Software - as - a - Service

This client is an end-user of entire programs that are delivered through a platform on-demand and operate on a cloud infrastructure. The A client window, such as browser, is often used to access the apps. Except for application parameters for particular user settings, the client has no influence over the underlying infrastructure or platform. E.g. Google Applications. **(Chappell, D. (2018, August)).**

# Chapter 8

# TYPES OF CLOUD

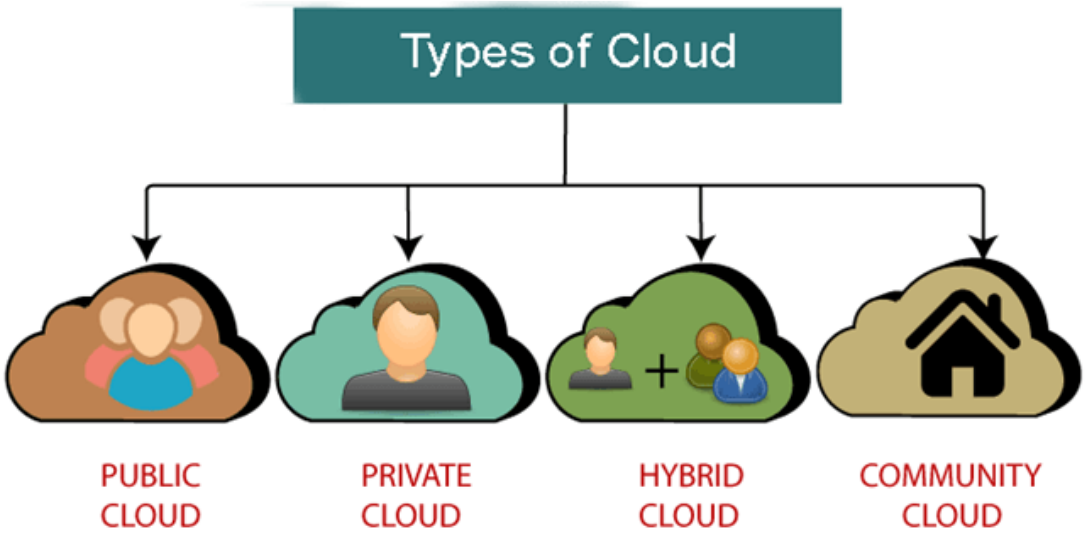



Figure 7: Types of Cloud
Source: Own Analysis made in MS Paint & PPT.

## Community Cloud

A community cloud might be formed when numerous businesses have comparable needs and want to share infrastructure in directive to reap advantages of cloud technology & computing. The costs might be split among the participating organizations. This option could provide more confidentiality, safety, and policy compliance. It might also be cost-effective and appealing since the community's resources (storage, workstations) have attained their return on investment. Google's "Go. v Cloud" is an example of a community cloud.

## Private cloud

This cloud, also known as int. cloud, is a phrase that company's custom to define Cloud tech. computing over pvt. networks these days. It is system, or a combination of systems, that provides hosted access to all of an organization's internal systems and applications.

### Public cloud

The classic model of cloud computing, in which possessions are enthusiastically given on a self - provision platform through Internet, is referred to as public cloud. It's referred to as pay-as-you-go computing, and the facility is marketed as Utility computing.

### Hybrid cloud

In a non-IT corporation, the IT department's primary role is to provide services to the business. The phrase "hybrid cloud computing" was coined as a result of the expanding usage of both public & pvt. cloud and the reality is IT Teams must also deliver services using conventional, in-house techniques. The cloud is also known as hybrid delivery by key sellers such as H.P, I-B-M, Oracle etc. which provide expertise to handle the complication of mixed delivery methods' performance, security, and privacy problems. In data centers, hybrid delivery is projected to become the standard.

# Chapter 9

# ROLES

## Provider

A cloud tech. computing provider is a company that owns and manages real cloud systems for the determination of giving services to all. Amazon was first to do so, upgrading its data centers, which, like other computer networks, were only utilizing around 10% of their capability at 1 time to allow for infrequent surges. It let organizations to add latest skins more quickly, and in 2002, got opened it up to customers as AWS.

## User

User is a cloud tech. computing consumer. His confidentiality in this has become upward delinquent. Users' privileges are also apprehension, which is being dealt via a community-led initiative.

## Vendor

A vendor provides services that make cloud technology & computing easier to deploy, accept, and utilize. Consider the following scenario:

- Hardware for computers (HP and Sun Microsystems)
- Safekeeping (EMC and IBM)
- Infrastructure is important (Cisco Systems)
- Software for computers (Hadoop & IBM)
- Computer operating systems (Solaris, Linux)
- Virtualization of platforms (VMware, Sun, IBM)

**Google** is the one of the major players in this offering a variety of services such as e-mail and document creation programs.

- Google says that its services are 99.99 percent dependable, yet customers have reported DT.

– Bugs are inevitable with latest technology.

**Amazon** provides storage services to businesses.

– Businesses have to pay for the storage only that they utilize.
– A growing number of businesses are beginning to trust cloud computing services and, as a result, are storing their info on cloud.
– It pleas to businesses since it reduces the amount of time personnel spend managing data and removes the need for maintenance.

**Microsoft** success. The software industry is expected to be harmed by the cloud computing sector.

– As a result, Microsoft is taking a stance and establishing its own cloud computing service, Azure.
– For a nominal monthly subscription, they provide web-based Microsoft document apps.
– Even the administration is interested in learning more about this new technology.
– The US Pentagon has launched RACE, a cloud technology service for military users. They say that since security is their first priority, their services are more dependable and secure.

# Chapter 10

# CLOUD COMPUTING PROS AND CONS W.R.T COST & SECURITY


Figure 8: Pros & Cons
Source: Zdnet.com

**Pros:**

- PC expenses are condensed.

- Increased efficiency.

- Lower SW expenses

- SW upgrades are available immediately.

- There is no limit to the amount of data that may be stored.

- Improved data consistency.

- Document accessibility for everyone.

- Availability of the most recent version.

- Document format compatibility has been improved.

**Cons:**

– Can be sluggish

– Features may be restricted

– Data stored may not be safe

– Data stored may be destroyed

–Constant Internet is reqd.

– It not function well with slow internet.

–Concerns about High-Performance Computing (HPC) Systems

## 10.1 LIMITATIONS

Cloud tech & computing is generally regarded as a groundbreaking IT idea, & its many products may cater to the demands of a broad range of clients, including huge corporations & SME. Particular cloud- apps, such as Google, is very successful; but, as the variety of services available develops, so does the unwillingness to faith many facilities or to send complex information to 0ff -location servers. It is plainly apparent at the corporate level, as policymakers in corporations' and orgns' I.T departments continue to refuse a shift to the cloud. Most of the dealings are only ready to subcontract apps that require less complex data at the moment. Even if they say yes to go to the cloud, they seek 3rd-party risk evaluations or at the very least question the providers concerns. All of these client concerns may be converted into what can be characterized as the primary barriers to cloud computing acceptance and growth. The subsections that follow look at each of these roadblocks. (**Fito, J. O., & Guitart, J. (2011)).**

### Availability of service

When clients have stored all of their dig. Info. and may need it at any moment, outages develop a huge concern. Because public cloud client mgmt. boundaries are available over the Internet, here is a good chance of disappointment over to conservative facilities as the components reqd. to access info or apps has more frail spots.

Clients have demanded that providers give more information about the present system condition and providers are fully conscious of these hazards. At Trust.salesforce.com, for example, Salesforce displays the average responsiveness for a server operation in real time. A service dashboard has been built by Amazon, which shows basic uptime and status history.

**Data lock-in**

Acc. to certain experts, such as Stalman, the adoption of registered cloud-based apps may lead to scenarios where movement from 1 cloud to another IT infrastructure is almost difficult. The absence of defined A-P-Is is to guilt for the present lack of movability of apps and inter-operability. Thus, moving apps across clouds is a problematic operation.

Not only would a move toward standardized APIs eliminate this danger by enabling SaaS to design software services that are compatible across all clouds, but it would also give a solid foundation for moving into hybrid computing models.

**Data segregation**

A matter of isolation is a consequence of the multi-tenant mode, in which various clients VM are co-lo-cated on the same host would be on the similar hard drives. In what way should users be safely isolated in the cloud? There are many reported weaknesses in several commercial hyper-visors that have been used to obtain access to one or more customers' VMs. A side-channel assault is another sort of attack whose capability has been documented.

**Data safety and confidentiality:**

The dispersed structure of the cloud architecture necessitates increased data tx via nw, posing additional security encounters. Whether the data is at rest or in transit, its secrecy must be ensured. While encryption is a respectable method to keep data harmless in the cloud, it not works well with cloud-related operations Some procedures are tough to perform with encrypted data, and controls using encrypted data would use additional treating resources.

**Data location:**

In some circumstances, the geo placement of the data is as significant as the structure of the cloud nw. Eloquent where data is stored is dangerous to its security, since governing rules in various nations may vary significantly. Some countries penalize organization's that enable specific sorts of data to traverse geographic boundaries, thus a client might be implicated in unlawful acts without even realizing it.

**Recovery and back-up**

In calamity, SPs must have a strategy for backup. Data re-plication across many sites may be used to do this, and the strategy must be covered in the SLA.

## 10.2 BENEFITS

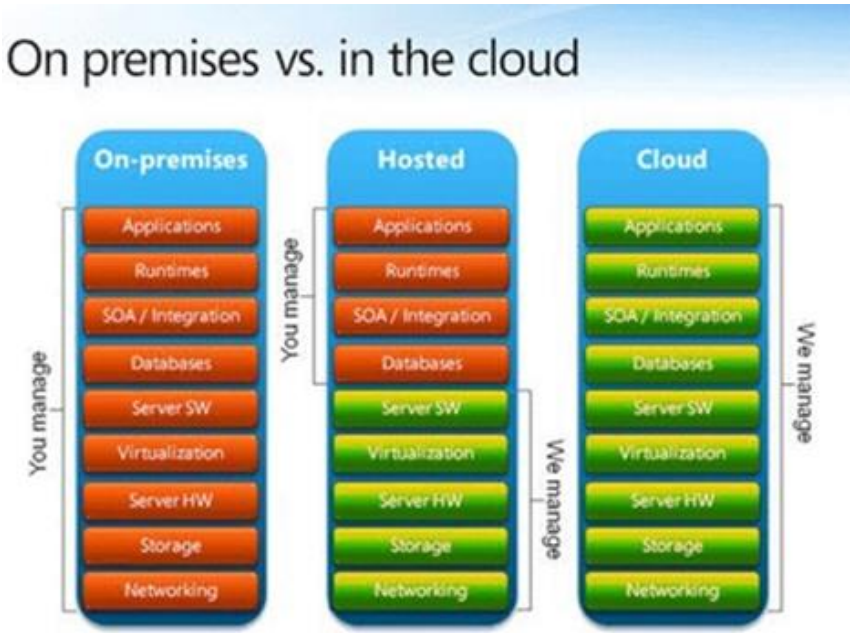



Figure 9- comparison of various infra sources.
Source- www.iitweb.bloomu.edu

### High availability:

Any website must be accessible to respectable peoples from all around the world. A well-designed Cloud establishes and connects several access points in different parts of the world. On behalf of its clients, the hosting company must successfully accept and route inbound requests virtualized applications on the cloud.

### Security

Data centralization, greater security-focused resources, and other factors might enhance security. Because the Cloud is managed by the Cloud provider, businesses must participate in security. The Cloud Service provider has pros on staff that can help protect the Cloud even further. SME 's might not be able to afford to engage highly salaried security professionals, thus cloud resources are a preferable option.

**Maintenance**

Because cloud computing programs do not need to be mounted on the operator's machine, they are simple to maintain. Because the adjustments can be implemented to clients quickly, it is simple to support and update. Cloud infra services, often known as IaaS, provide computing infra as a virtual platform.

**Reduced Costs:**

Cloud users do not have to pay anything up advance. They must pay gradually for the resources they utilize, which saves them a lot of money.

# Chapter 11

# DISCUSSIONS

## Thoughts against Cloud Technology & Computing creating negative influence on Businesses

Despite the fact that cloud Technology & computing is a valuable developing utility, it is not well-received and supported by certain industry experts. Some of those people's thoughts are presented below.

"The exciting thing about Cloud Technology is that we have redefined Cloud Technology to cover everything that we currently do," says Larry Ellison. Other than changing the phrasing of some of our commercials, I'm not sure what we'd do contrarily in light of Cloud tech & Computing."

"A lot of people are jumping on a bandwagon," Andy Isherwood says, "but I haven't heard two individuals say the same thing about it." The term "cloud" is defined in a variety of ways.

Cloud Computing, according to Richard Stallman, a proponent of "free software," is a user trap. Users may become reliant on patented systems whose pricing and facility conditions may be modified separately and negatively if apps and data are handled "in the cloud."

Cloud was savagely criticized by Richard Stallman. "It's idiocy," he declares. It's a marketing hype campaign, which is much worse than ignorance. Someone is claiming that this is unavoidable — and anytime you hear someone say that, it's almost always a group of corporations working to make it so." **(Mohindra, A., & Dias, D. M. (2015)).**

## People favoring Cloud Computing creating positive influence on Businesses

Although certain industry pioneers are opposed to the notion of Cloud computing, a great number of individuals believe that it is one of the most helpful developing technologies that gives an answer not only to SME's and newcomers, but also to major corporations.

"Cloud computing is really a no-brainer for any start-up since it enables you to test your business idea very fast for very little money," says Brad Jefferson in support of Cloud Computing. Every start-up, or even a division inside a firm, that has a novel concept should figure out how to include cloud computing into their strategy.

"Cloud services firms of all sizes," said Benioff, from salesforce.com, one of the most vocal champions of cloud technologies. Everyone has access to the cloud. "The cloud is a representative democracy." **(Mohindra, A., & Dias, D. M. (2015)).**

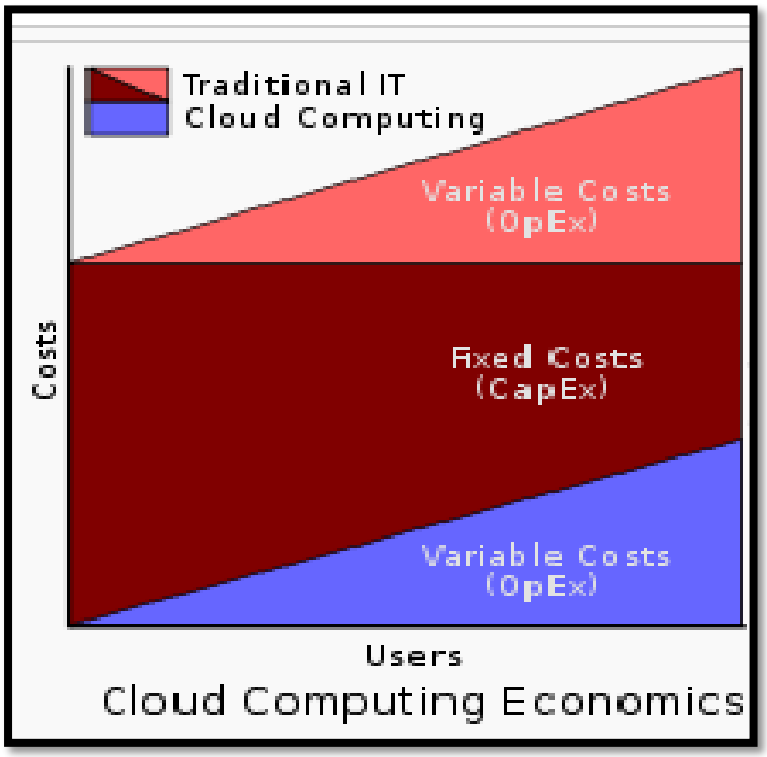
"There was a period when every home, town, farm, or hamlet had its own water well," remarked Vivek Kendra, the CIO of the USA. Cloud computing operates in a similar way to how shared public services provide us with sparkling water by just turning on the faucet. Cloud computing services, like water from your kitchen faucet, may be switched on and off as required. As with the water business, a staff of devoted specialists ensures that the service supplied is safe, secure, and accessible 24 hours a day, seven days a week. Whenever the tap isn't turned on, you're not just conserving water, but you're also not paying for things you don't need right now."

# Chapter 12

## COST & ECONOMICS- FOR CONSIDERING CLOUD TECHNOLOGY & COMPUTING IN A BUSINESS

Users of cloud may save CAPEX expenditures on HW, SW, and services by only paying for what they consume. With no or little upfront cost, consumption is billed as an efficacy (e.g. resources utilized, such as energy) or contribution (e.g. time-based, such as a newspaper). Common infrastructure and expenses, low administrative over-head, and rapid admittance to a large variety of apps are all advantages of this time handling type approach. Users may usually cancel their contracts at any time (avoiding risk and ambiguity about their return on investment), and services are often protected by SLA with huge fines.

Figure 10: Cloud Computing Economics
Source: Own make in MS Paint & PPT.



### 12.1 Key Characteristics

• **Costs** are drastically lowered, and capital expenditures are transformed to operating expenses. This reduces the entrance barrier since infra is usually offered by a 3rd party and does not have to be acquired for one-time or rarely challenging computing workloads.

• **Device and position flexibility** allows user to contact services through a browser independent of their locations or equipment's, such as a PC or mobile phone. Users may join from anywhere since the infrastructure is off-site and accessible through the Internet.

• **Multi-tenancy allows a huge collection of users to share assets and expenses, agreeing for**

- Infra centralism in cost-effective regions
- Increases in peak-load capacity
- Increased utilization and efficiency for technologies that are only used 10-20% of the time.

# Chapter 13

## SECURITY- FOR CONSIDERING CLOUD TECHNOLOGY & COMPUTING IN A BUSINESS

Cloud tech & computing services relative security is a sensitive subject that might be impeding their adoption. The business and governmental sectors' concerns about the external administration of security-based services are a major impediment to cloud computing adoption. Cloud tech & computing-based services, whether pvt. or public, encourage peripheral administration of offered services by their very nature. This provides a significant incentive for cloud computing services to make establishing and maintaining robust security management a priority.

To offer ethics for a positive tomorrow in cloud tech & computing services, organizations have been founded. The Cloud- Security Alliance, for example, is a NPO dedicated to promoting the adoption of best practices for providing safekeeping assurances in cloud technologies.

# Chapter 14

# CASE STUDY

This segment summarizes current cloud technology & computing offerings, separating based on the degree or the level of service given to programmers and the degree of resource management.

**Amazon Web Services**

AWS, which encompasses the full service spectrum. To now, Amazon is the retailer that offers items in all three categories. AWS is made up of many parts:

• (EC2 instance): Amazon's IaaS service is best in its class. It provides consumers with a pay-as-you-go resource, such as computing. Requesting virtual machines as server instances on EC2 is done using a web interface. Because of its low degree (i.e., IaaS by definition has minimal abstraction level when compared to P.a.a.S or S.a.a.S), an EC2 instance seems to be real hardware. Customers may raise or reduce the number of instances, and AWS responds by ascending up or down the instances. There are three sizes of server instances, each with a diff amount of memory, computational power, and BW.

• Simpl-Storage-Service (S3) is a climbable storage service that may be used to host apps that are then made available to end clients.

• Amazon SimpleDB is a web service that implements a database (DB). Web services requests are used by developers to store & query data objects. These developers are no longer concerned about the database's inherent complexity thanks to Amazon.

**Go-Grid**

Go-Grid is an IaaS provider that competes directly with Amazon and Rackspace. Go Grid provides a cost-effective solution based on dedicated hosted servers in their cloud data centers.

**Salesforce**

Salesforce is a famous SaaS. Salesforce's initial and most popular prod is a web-based C.R.M tool. Salesforce has shifted its attention to business clients and launched new apps to its CRM platform. While Salesforce had previously only supplied SaaS-class goods, in 2002 they moved their focus to the P.a.a.S marketplace with the introduction of their Frce.com platform, which enables designers to create apps that run directly on Salesforce or can be linked with 3rd-vendor services. It is in charge of ascending up or down the platform as required in the instance of Force.com, making the addition of additional hw apparent to the worker.

**Google App Engine**

PaaS offering from Google is a used for building and hosting web apps on Google's servers. Google's distributed and scalable file systems (Big Table and File System), as well as technologies utilized by Google's broad variety of web applications, are available to the user (e.g., Gmail, Docs, Google Reader, Maps, Earth, or YouTube).

**Microsoft Windows Azure**

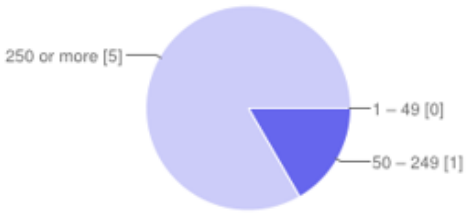
Windows Azure is a brand-new cloud platform offering (commercially accessible since February 2010) that gives developers on- call computation & storage to host, scale, and cope apps over the Internet utilizing MS DCs.

Currently, the AZ Services platform can only run.NET apps, although MS has said that it will support a wide variety of languages in the future. Indeed, 2 SDKs for compatibility with the Azure Services platform have already been made available, allowing Java developers to interface their applications with NET services.

# Chapter 15

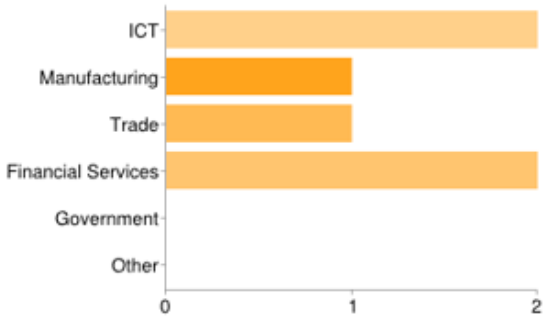
# QUESTIONNAIRE OUTCOME

**Q1). How many employees does your company have?**



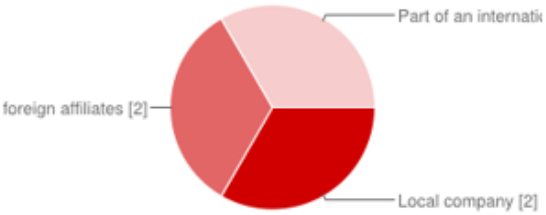

| | | |
|---|---|---|
| 1 – 49 | 0 | 0% |
| 50 – 249 | 1 | 17% |
| 250 or more | 5 | 83% |

**Q2). Which industry sector does your company belong to?**




| | | |
|---|---|---|
| ICT | 2 | 33% |
| Manufacturing | 1 | 17% |
| Trade | 1 | 17% |
| Financial Services | 2 | 33% |
| Government | 0 | 0% |
| Other | 0 | 0% |

**Q3). Company location?**

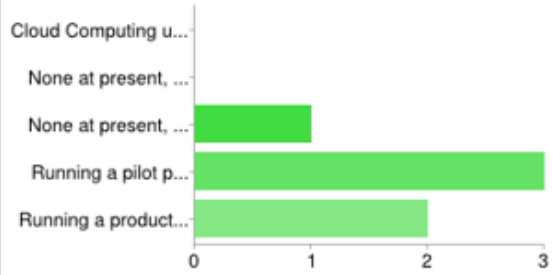



| | | |
|---|---|---|
| Local company | 2 | 33% |
| Local company with the foreign affiliates | 2 | 33% |
| Part of an international corporation | 2 | 33% |

**Q4). Have you used, or are you planning to use Cloud Computing services?**

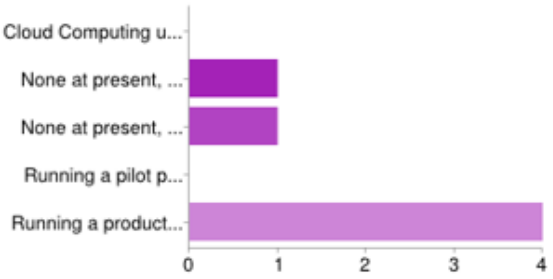

| | | |
|---|---|---|
| Yes | 6 | 100% |
| No | 0 | 0% |

**Q5). Is your organization using any of the following Cloud Computing services?**



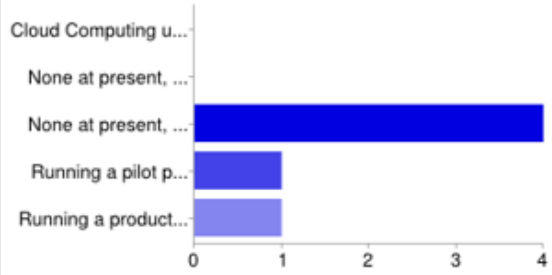

| | | |
|---|---|---|
| Cloud Computing used in the past, but projects have been discontinued | 0 | 0% |
| None at present, and not planning within the next 12 months | 0 | 0% |
| None at present, but planning within the next 12 months | 1 | 17% |
| Running a pilot project at present | 3 | 50% |
| Running a production system at present | 2 | 33% |

**IaaS:**




| | | |
|---|---|---|
| Cloud Computing used in the past, but projects have been discontinued. | 0 | 0% |
| None at present, and not planning within the next 12 months. | 1 | 17% |
| None at present, but planning within the next 12 months. | 1 | 17% |
| Running a pilot project at present. | 0 | 0% |
| Running a production system at present. | 4 | 67% |

**PaaS:**

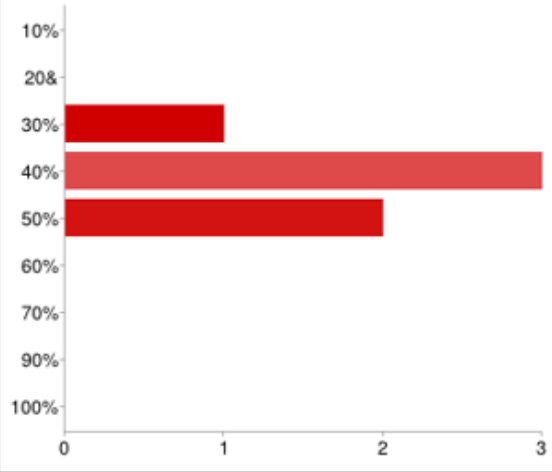



| | | |
|---|---|---|
| Cloud Computing used in the past, but projects have been discontinued. | 0 | 0% |
| None at present, and not planning within the next 12 months. | 0 | 0% |
| None at present, but planning within the next 12 months. | 4 | 67% |
| Running a pilot project at present. | 1 | 17% |
| Running a production system at present. | 1 | 17% |

**Q6). What percentage of your IT operational expenditure is constituted by Cloud Computing services (i.e. SaaS, IaaS and PaaS together)?**

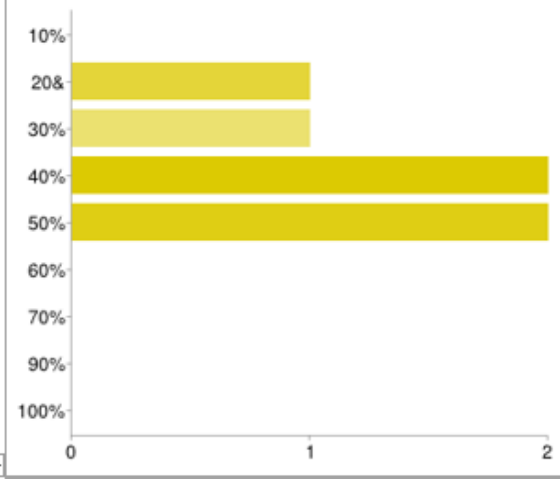

| | | |
|---|---|---|
| 1 – 25% | 6 | 100% |
| 26 – 50% | 0 | 0% |
| 51 – 75% | 0 | 0% |
| 76 – 100% | 0 | 0% |

**Q7). What percentage each Cloud Computing service type (i.e. SaaS, IaaS and PaaS) represents? [NOTE: Answers' total must be 100% ]**



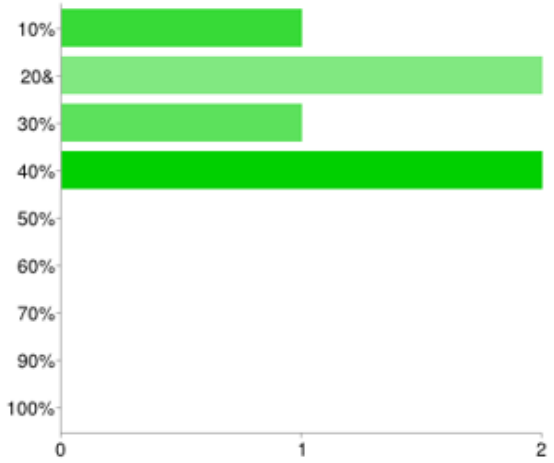

| | | |
|---|---|---|
| 10% | 0 | 0% |
| 20& | 0 | 0% |
| 30% | 1 | 17% |
| 40% | 3 | 50% |
| 50% | 2 | 33% |
| 60% | 0 | 0% |
| 70% | 0 | 0% |
| 90% | 0 | 0% |
| 100% | 0 | 0% |

**IaaS**



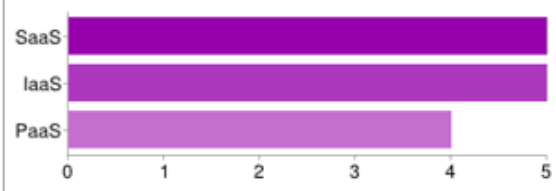

| | | |
|---|---|---|
| 10% | 0 | 0% |
| 20& | 1 | 17% |
| 30% | 1 | 17% |
| 40% | 2 | 33% |
| 50% | 2 | 33% |
| 60% | 0 | 0% |
| 70% | 0 | 0% |
| 90% | 0 | 0% |
| 100% | 0 | 0% |

**PaaS**




| | | |
|---|---|---|
| 10% | 1 | 17% |
| 20& | 2 | 33% |
| 30% | 1 | 17% |
| 40% | 2 | 33% |
| 50% | 0 | 0% |
| 60% | 0 | 0% |
| 70% | 0 | 0% |
| 90% | 0 | 0% |
| 100% | 0 | 0% |

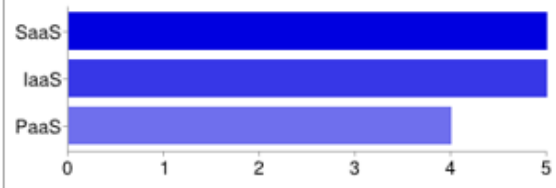
**Q8). What types of processes do you support with Cloud Computing services?**




| | | |
|---|---|---|
| SaaS | 5 | 83% |
| IaaS | 5 | 83% |
| PaaS | 4 | 67% |

People may select more than one checkbox, so percentages may add up to more than 100%.

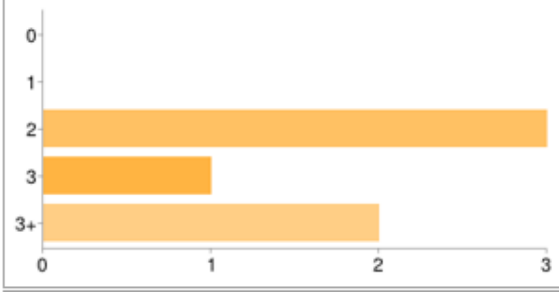
**Non- Mission Critical processes**




| | | |
|---|---|---|
| SaaS | 5 | 83% |
| IaaS | 5 | 83% |
| PaaS | 4 | 67% |

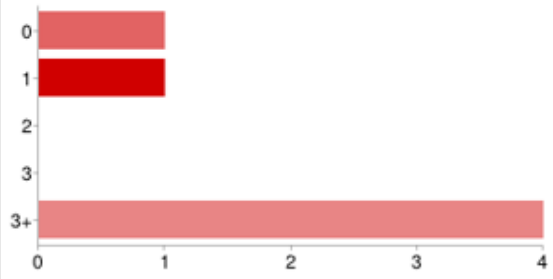
People may select more than one checkbox, so percentages may add up to more than 100%.

**Q9). How many Cloud Computing service providers do you have? - # local service providers**



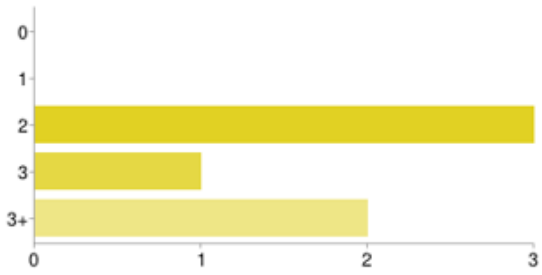

| | | |
|---|---|---|
| 0 | 0 | 0% |
| 1 | 0 | 0% |
| 2 | 3 | 50% |
| 3 | 1 | 17% |
| 3+ | 2 | 33% |

**Q9). How many Cloud Computing service providers do you have? - # global service providers**



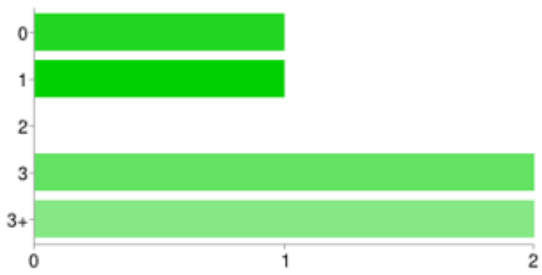

| | | |
|---|---|---|
| 0 | 1 | 17% |
| 1 | 1 | 17% |
| 2 | 0 | 0% |
| 3 | 0 | 0% |
| 3+ | 4 | 67% |

**IaaS - # local service providers**



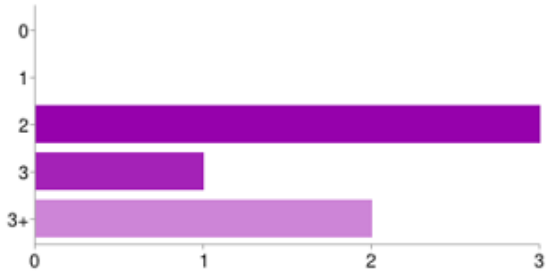

| | | |
|---|---|---|
| 0 | **0** | 0% |
| 1 | **0** | 0% |
| 2 | **3** | 50% |
| 3 | **1** | 17% |
| 3+ | **2** | 33% |

**IaaS - # global service providers**



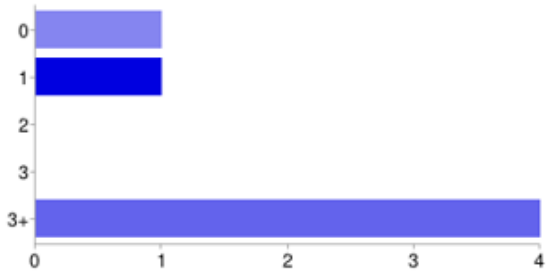

| | | |
|---|---|---|
| 0 | **1** | 17% |
| 1 | **1** | 17% |
| 2 | **0** | 0% |
| 3 | **2** | 33% |
| 3+ | **2** | 33% |

**PaaS - # local service providers**




| | | |
|---|---|---|
| 0 | **0** | 0% |
| 1 | **0** | 0% |
| 2 | **3** | 50% |
| 3 | **1** | 17% |
| 3+ | **2** | 33% |

**PaaS - # global service providers**




| | | |
|---|---|---|
| 0 | **1** | 17% |
| 1 | **1** | 17% |
| 2 | **0** | 0% |
| 3 | **0** | 0% |
| 3+ | **4** | 67% |

**Q10). What types of SaaS services have you used, or are planning to use in the near future?**


| | | |
|---|---|---|
| Analytics | 6 | 100% |
| Collaboration (e.g. office applications) | 5 | 83% |
| Communication (e.g. email) | 5 | 83% |
| Content Management | 4 | 67% |
| Finance & Administration | 3 | 50% |
| Human Resources | 2 | 33% |
| IT Management | 5 | 83% |
| Marketing | 2 | 33% |
| Productivity & Resources | 2 | 33% |
| Supply & Logistics | 2 | 33% |
| CRM/Sales | 2 | 33% |
| Service & Support | 2 | 33% |

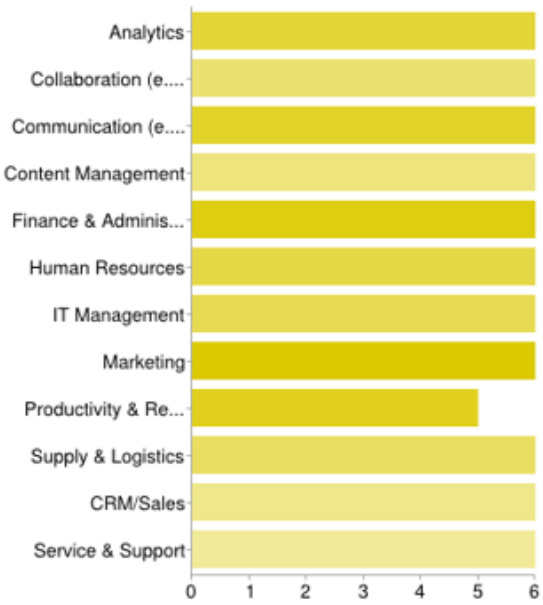
People may select more than one checkbox, so percentages may add up to more than 100%.

**At present**


| | | |
|---|---|---|
| Analytics | 5 | 83% |
| Collaboration (e.g. office applications) | 3 | 50% |
| Communication (e.g. email) | 4 | 67% |
| Content Management | 4 | 67% |
| Finance & Administration | 5 | 83% |
| Human Resources | 3 | 50% |
| IT Management | 1 | 17% |
| Marketing | 4 | 67% |
| Productivity & Resources | 1 | 17% |
| Supply & Logistics | 2 | 33% |
| CRM/Sales | 5 | 83% |
| Service & Support | 3 | 50% |

People may select more than one checkbox, so percentages may add up to more than 100%.

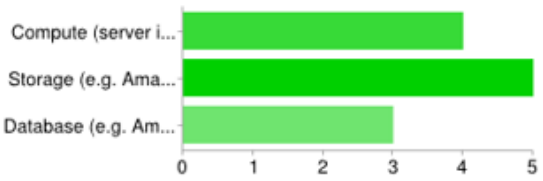
**Within the next 12 months**




| | | |
|---|---|---|
| Analytics | 6 | 100% |
| Collaboration (e.g. office applications) | 6 | 100% |
| Communication (e.g. email) | 6 | 100% |
| Content Management | 6 | 100% |
| Finance & Administration | 6 | 100% |
| Human Resources | 6 | 100% |
| IT Management | 6 | 100% |
| Marketing | 6 | 100% |
| Productivity & Resources | 5 | 83% |
| Supply & Logistics | 6 | 100% |
| CRM/Sales | 6 | 100% |
| Service & Support | 6 | 100% |

People may select more than one checkbox, so percentages may add up to more than 100%.

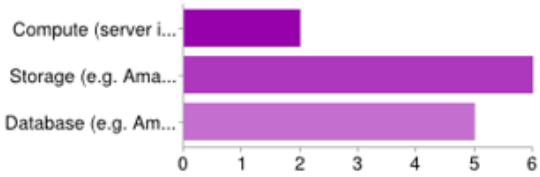
**Q11). Have you used, or are planning to use in the near future IaaS services?**




| | | |
|---|---|---|
| Compute (server instances) (e.g. Amazon EC2) | 4 | 67% |
| Storage (e.g. Amazon S3) | 5 | 83% |
| Database (e.g. Amazon SimpleDB) | 3 | 50% |

People may select more than one checkbox, so percentages may add up to more than 100%.

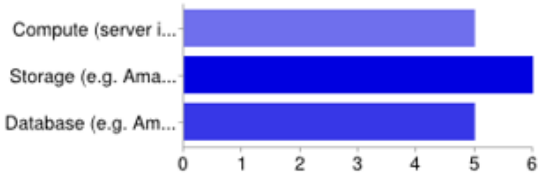
**At present**




| | | |
|---|---|---|
| Compute (server instances) (e.g. Amazon EC2) | **2** | 33% |
| Storage (e.g. Amazon S3) | **6** | 100% |
| Database (e.g. Amazon SimpleDB) | **5** | 83% |

People may select more than one checkbox, so percentages may add up to more than 100%.

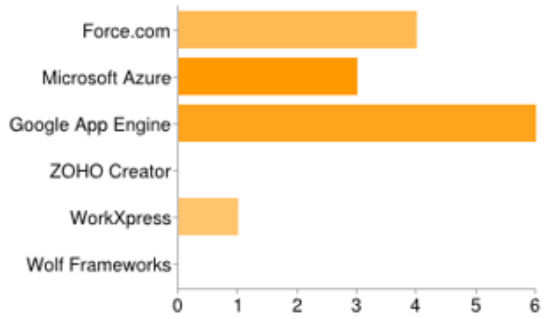
**Within the next 12 months**




| | | |
|---|---|---|
| Compute (server instances) (e.g. Amazon EC2) | **5** | 83% |
| Storage (e.g. Amazon S3) | **6** | 100% |
| Database (e.g. Amazon SimpleDB) | **5** | 83% |

People may select more than one checkbox, so percentages may add up to more than 100%.

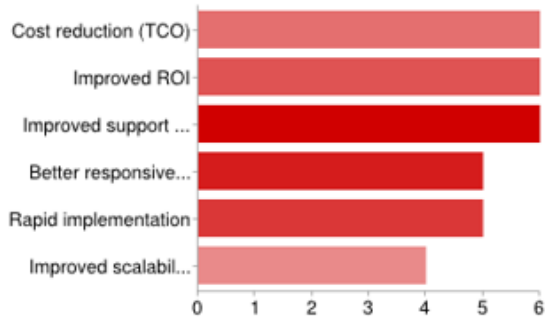
**Q12). Which PaaS services do you use?**




| | | |
|---|---|---|
| Force.com | 4 | 67% |
| Microsoft Azure | 3 | 50% |
| Google App Engine | 6 | 100% |
| ZOHO Creator | 0 | 0% |
| WorkXpress | 1 | 17% |
| Wolf Frameworks | 0 | 0% |

People may select more than one checkbox, so percentages may add up to more than 100%.

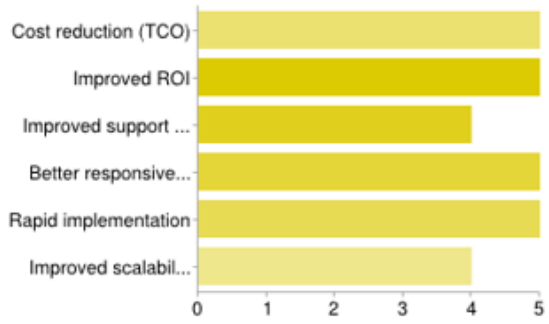
**Q13). What were your main motivations for adopting Cloud Computing?**




| | | |
|---|---|---|
| Cost reduction (TCO) | 6 | 100% |
| Improved ROI | 6 | 100% |
| Improved support for business processes | 6 | 100% |
| Better responsiveness to changing requirements | 5 | 83% |
| Rapid implementation | 5 | 83% |
| Improved scalability (elasticity) | 4 | 67% |

People may select more than one checkbox, so percentages may add up to more than 100%.

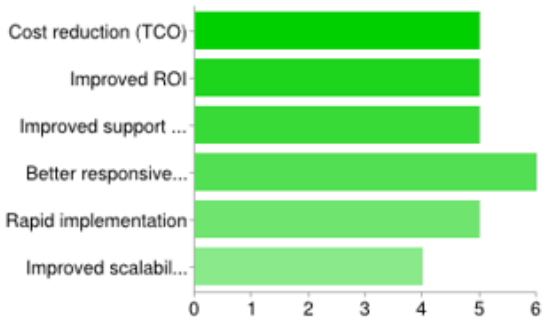
**IaaS**




| | | |
|---|---|---|
| Cost reduction (TCO) | 5 | 100% |
| Improved ROI | 5 | 100% |
| Improved support for business processes | 4 | 80% |
| Better responsiveness to changing requirements | 5 | 100% |
| Rapid implementation | 5 | 100% |
| Improved scalability (elasticity) | 4 | 80% |

People may select more than one checkbox, so percentages may add up to more than 100%.

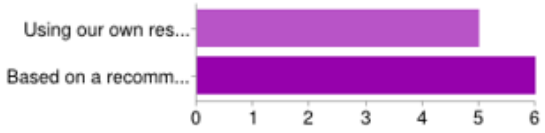
**PaaS**




| | | |
|---|---|---|
| Cost reduction (TCO) | 5 | 83% |
| Improved ROI | 5 | 83% |
| Improved support for business processes | 5 | 83% |
| Better responsiveness to changing requirements | 6 | 100% |
| Rapid implementation | 5 | 83% |
| Improved scalability (elasticity) | 4 | 67% |

People may select more than one checkbox, so percentages may add up to more than 100%.

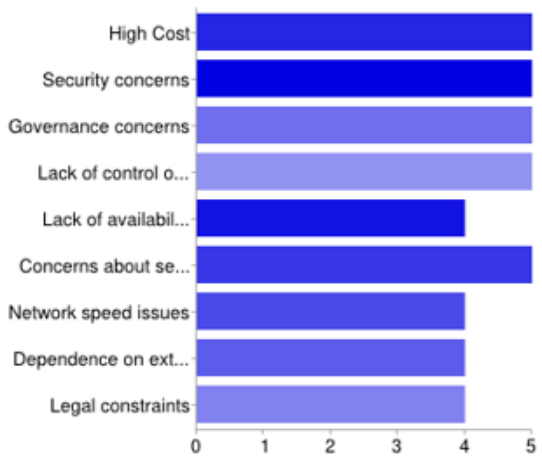
**Q14). How did you evaluate the suitability of Cloud Computing for your organization?**




| | | |
|---|---|---|
| Using our own research | 5 | 83% |
| Based on a recommendation of service provider/system integrator | 6 | 100% |

People may select more than one checkbox, so percentages may add up to more than 100%.

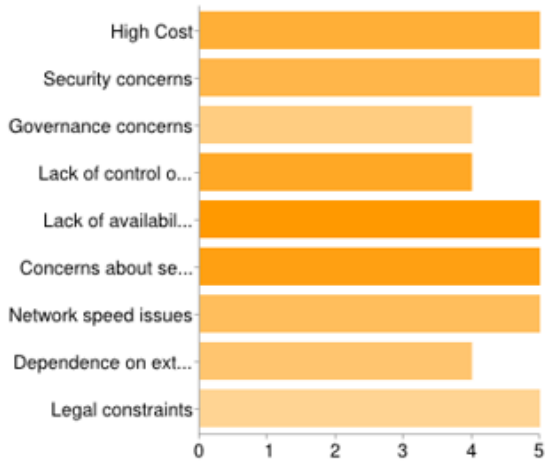
**Q15). What were your main concerns before deciding to adopt Cloud Computing?**




| | | |
|---|---|---|
| High Cost | 5 | 83% |
| Security concerns | 5 | 83% |
| Governance concerns | 5 | 83% |
| Lack of control over resources | 5 | 83% |
| Lack of availability of suitable services | 4 | 67% |
| Concerns about service availability | 5 | 83% |
| Network speed issues | 4 | 67% |
| Dependence on external service provider | 4 | 67% |
| Legal constraints | 4 | 67% |

People may select more than one checkbox, so percentages may add up to more than 100%.

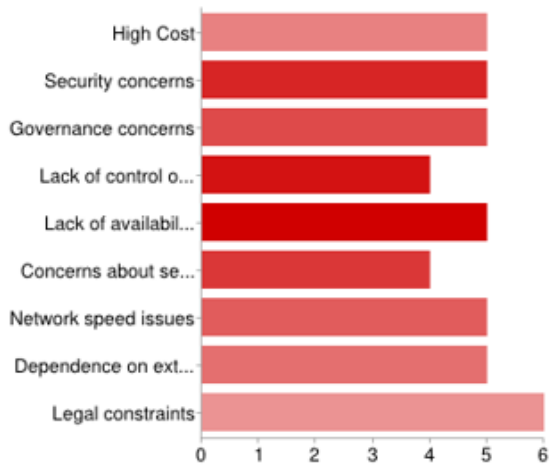
**IaaS**




| | | |
|---|---|---|
| High Cost | 5 | 83% |
| Security concerns | 5 | 83% |
| Governance concerns | 4 | 67% |
| Lack of control over resources | 4 | 67% |
| Lack of availability of suitable services | 5 | 83% |
| Concerns about service availability | 5 | 83% |
| Network speed issues | 5 | 83% |
| Dependence on external service provider | 4 | 67% |
| Legal constraints | 5 | 83% |

People may select more than one checkbox, so percentages may add up to more than 100%.

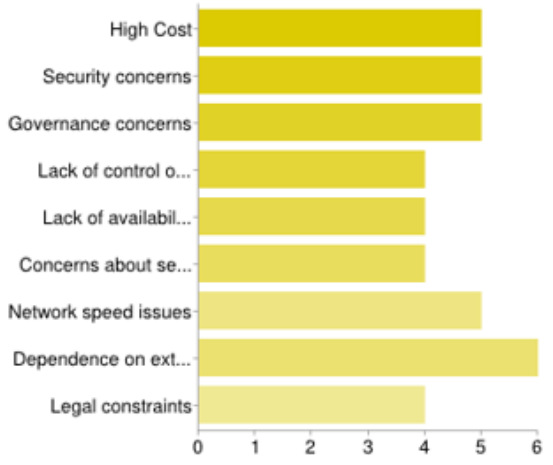
**PaaS**




| | | |
|---|---|---|
| High Cost | 5 | 83% |
| Security concerns | 5 | 83% |
| Governance concerns | 5 | 83% |
| Lack of control over resources | 4 | 67% |
| Lack of availability of suitable services | 5 | 83% |
| Concerns about service availability | 4 | 67% |
| Network speed issues | 5 | 83% |
| Dependence on external service provider | 5 | 83% |
| Legal constraints | 6 | 100% |

People may select more than one checkbox, so percentages may add up to more than 100%.

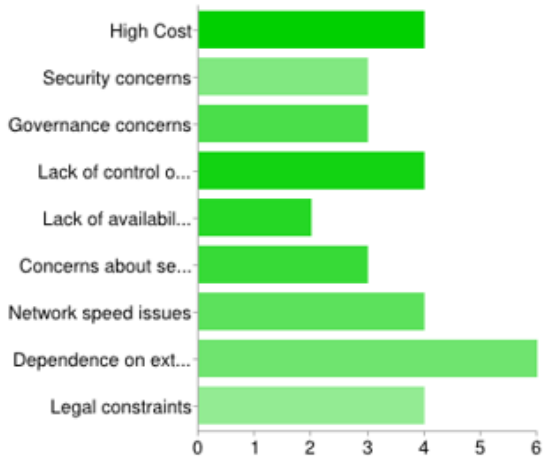
**(Q16). What are your main concerns now, i.e. after adopting Cloud Computing?**




| | | |
|---|---|---|
| High Cost | 5 | 83% |
| Security concerns | 5 | 83% |
| Governance concerns | 5 | 83% |
| Lack of control over resources | 4 | 67% |
| Lack of availability of suitable services | 4 | 67% |
| Concerns about service availability | 4 | 67% |
| Network speed issues | 5 | 83% |
| Dependence on external service provider | 6 | 100% |
| Legal constraints | 4 | 67% |

People may select more than one checkbox, so percentages may add up to more than 100%.

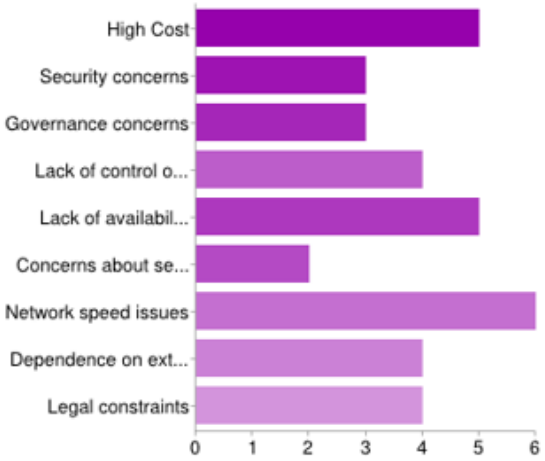
**IaaS**




| | | |
|---|---|---|
| High Cost | 4 | 67% |
| Security concerns | 3 | 50% |
| Governance concerns | 3 | 50% |
| Lack of control over resources | 4 | 67% |
| Lack of availability of suitable services | 2 | 33% |
| Concerns about service availability | 3 | 50% |
| Network speed issues | 4 | 67% |
| Dependence on external service provider | 6 | 100% |
| Legal constraints | 4 | 67% |

People may select more than one checkbox, so percentages may add up to more than 100%.

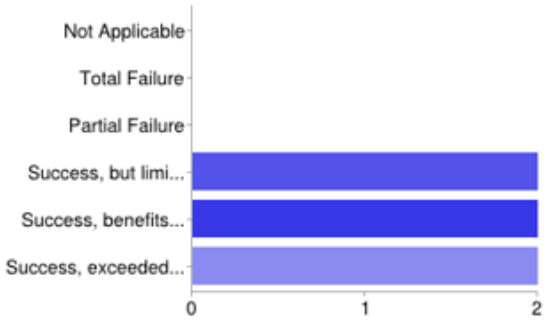
**PaaS**




| | | |
|---|---|---|
| High Cost | 5 | 83% |
| Security concerns | 3 | 50% |
| Governance concerns | 3 | 50% |
| Lack of control over resources | 4 | 67% |
| Lack of availability of suitable services | 5 | 83% |
| Concerns about service availability | 2 | 33% |
| Network speed issues | 6 | 100% |
| Dependence on external service provider | 4 | 67% |
| Legal constraints | 4 | 67% |

People may select more than one checkbox, so percentages may add up to more than 100%.

**Q17). How would you characterize the result of the implementation of Cloud Computing in your organization?**

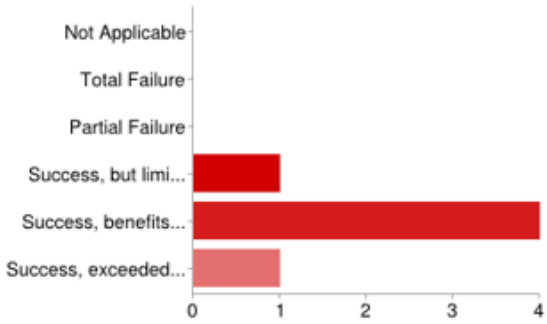



| | | |
|---|---|---|
| Not Applicable | 0 | 0% |
| Total Failure | 0 | 0% |
| Partial Failure | 0 | 0% |
| Success, but limited benefits | 2 | 33% |
| Success, benefits as expected | 2 | 33% |
| Success, exceeded expectations | 2 | 33% |

**IaaS**


| | | |
|---|---|---|
| Not Applicable | 0 | 0% |
| Total Failure | 0 | 0% |
| Partial Failure | 0 | 0% |
| Success, but limited benefits | 2 | 33% |
| Success, benefits as expected | 2 | 33% |
| Success, exceeded expectations | 2 | 33% |

**PaaS**




| | | |
|---|---|---|
| Not Applicable | 0 | 0% |
| Total Failure | 0 | 0% |
| Partial Failure | 0 | 0% |
| Success, but limited benefits | 1 | 17% |
| Success, benefits as expected | 4 | 67% |
| Success, exceeded expectations | 1 | 17% |

## 15.1 FINDINGS & RECOMMENDATIONS

According to the findings, the Cloud's usefulness fulfils the needs of today's business. The workload might decrease or expand extremely quickly as a result of the volatile changing environments, posing a barrier for the enterprise's ability to scale up or down quickly. Furthermore, capabilities that were previously only accessible to the technological behemoths and were too expensive for small businesses may become accessible to them. Cloud Technologies doesn’t work well for economic institutions with delicate data that they do not want to share with third-party providers.

Cloud computing is becoming more popular, and there are a few early adopters. Companies may now create infrastructure in weeks or months rather than the 20 years it used to take. The most reliable solutions from a variety of manufacturers are in the early stages of development, but they will undoubtedly gain traction in a short amount of time. Perhaps the future years will reveal if Cloud computing is one of the most promising new advancements of all time or just a hyped fad.

# Chapter 16

# CONCLUSION

- Companies must select and be cautious about what data they permit to be stored on the cloud.
- Cloud technology & computing may be a valuable resource for industries observing to save money, but it also has drawbacks.
- The ordinary individual does not want their private details to be exposed and unprotected.
- I believe that as firms improve their cloud computing, more organizations will be willing to use them.
- This will offer innovative methods to utilize PCs and deliver services.

Cloud technology & computing liberates you to concentrate on designing business apps that provide actual worth to your company by removing the issues associated with conventional application development (or your customers). The platform allows IT to develop without the expenses and frustrations of servers, specific software packages, middle-ware or P2P connections, updates, and the manpower required to handle it all.

**Cloud Computing Opens Up New Horizons -**

• Business responsiveness has increased.

•Acquisition complexity has been condensed via service concerned approach

• Shares and maximizes IT resources to get the most out of them.

• Energy usage is reduced.

• Responsibilities include new and developing workloads.

• Scales rapidly and easily to severe workloads

• IT administration is made easier.

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