What is “The Cloud”?

Have you ever wondered why users can access their social media platforms on different devices? A typical example is when a mobile phone is replaced, but users still find their old account in place including important files and conversations. This is possible because of "The Cloud".

"The Cloud" is the term used to refer to online servers that are accessible over the Internet. Not only can one access these servers, but software and databases on these servers are also conveniently accessed. The Cloud has made technical activities like the running of software applications easier and convenient for users and companies.

Not only has the Cloud made activities easier, but it has helped in reducing the operating costs of businesses worldwide. The usage of the Cloud has had a positive impact on data management and decision making for companies.

Maintenance and updating of servers are tasks that will be carried out by the ‘Cloud’ service provider being contracted by a company. The usage of the Cloud has been an added advantage for companies that plan to optimise and streamline their internal infrastructure. Tech savvy companies and businesses have started to leverage the Cloud, to execute their infrastructural requirements. Files can now be accessed anywhere and at any time, hence enabling efficient domestic and international operations.

The history of the Cloud.

In the past, the networking infrastructure and servers that are the basic elements of the Internet as a Cloud were being represented by illustrative diagrams. The phrase "the Cloud " originated from the symbol of the ‘Cloud’ used in diagrams, symbolizing the Internet. As a Service it is visible as far back as in the 1960s. Consumers could rent computers rather than purchasing for personal use. Since that time, we have witnessed the evolution in PC usage. This evolution transformed the internet into the modern ‘Cloud’ infrastructure we see today. The history of "The Cloud" can be categorized into:

The first-generation Cloud 2005-2011.

It was during this period, the traditional definition of what the Cloud began to unfold. Application owners were able to typically exploit two-tiered architecture in which Cloud providers host the backend, whereas the users sent all their requests from the web and mobile applications to the Cloud. The crude definition of the Cloud was realized during this period. Users could only send their requests from mobile applications to the Cloud. Projects like the open Nebula research project and The EC2 (ELASTIC computer Cloud) were launched to develop stacks of software.

The second-generation Cloud - 2012-17

During this period, there was already a wide choice of providers, coupled with an influx of competition and services provided. Due to this shifting marketplace, non-relational database services were now available in addition to relational database. The whole system evolved into a combination of public and private Cloud. This combination gave rise to what is known as the Hybrid Cloud.

The types of Cloud

These different Cloud types are a result of a natural progression of Cloud server functionality and the Cloud service provider offerings to the marketplace Highlighted below are the common Cloud types we have:

- **Public Cloud**: This is a service run by an external vendor that could include servers in a single configuration or more than one data center. It differs from the ‘private Cloud’ in the sense that public Clouds are typically shared by two or more organizations. This can be referred to as a "multi-tenancy” user profile, due to the fact that multiple companies or users rent server space within the same server.

- **Private Cloud**: This is a server or ‘distributed network’ that is fully dedicated to one company or business organization. It is strictly meant to oversee all activities within a single organization setting.

- **Hybrid Cloud**: Hybrid Cloud type as the name implies is a combination of public and private Cloud types. Typically, it will include 'on-premises' legacy servers. An organization may decide to use their private Cloud for some services and their public Cloud for others. They may also use the public Cloud as a backup Cloud for their private Cloud.

- **MultiCloud**: This is a Cloud type that involves the usage of multiple public Clouds. In other words, an organization with a multi-Cloud deployment strategy, contracts virtual servers from various external vendors. In other words, it is the leasing of several public Cloud servers from external vendors. MultiCloud is synonymous with a hybrid Cloud.

Benefits of migration to the Cloud

- **It helps in drastically reducing expenses:** one of the benefits of moving your business to the Cloud is that it saves the company incurring avoidable capital outlay expenditures. Also, the services of trained personnel, are no longer required for maintenance and general upkeep. All management of activities are carried out by the Cloud service provider.

- **Automatic updating of the whole system:** This is also one of the best advantages of Cloud services in that it helps one to access the latest applications at any time without spending extensive time and money on installations and/or reconfiguration.

- **Timesaving:** "The Cloud" allows a business organization to efficiently deploy services within a short period. This faster deployment enables an organization to have access to the resources required and hence simply be more agile and competitive.

- **Back-up and restore data:** Once data is stored on the Cloud, it is easier to retrieve the backup and recovery of data which can otherwise a very time-consuming process.

- **Automatic Software Integration:** In the Cloud, software integration is a naturally occurring process by default. Therefore, one does not need to expend additional efforts to customize and integrate business applications, as per the company's preferences.

- **The Cloud is reliable:** Reliability is one of the biggest benefits of the Cloud. One is always updated on system changes, as part of the overall service.

- **Easily accessible from any location:** Users can easily access all the Cloud services as long as an Internet connection is reliable.
- **Infinitesimal storage capability:** The Cloud offers almost limitless storage capacity. At any given time, one is able to quickly increase storage capacity at a very nominal monthly cost.
- **Quick and efficient Disaster recovery.** The Cloud service provider typically offers quick and reliable disaster recovery. This default position negates the requirement for 'contingency planning'.

Disadvantages

- **Variation in performance**. When working in a Cloud environment, several applications are running on the server at the same time this server provides resources to other businesses. When multiple systems flood the bandwidth or resources of a targeted system, the performance of the overall system can be compromised to an extent, however this is a manageable condition.
- **Technical Issues could arise**. The Cloud is potentially always vulnerable to facing technical issues. Even, the best Cloud service provider companies may face such challenges in spite of high standards of maintenance.
- **Undisclosed cost.** The usage of service providers may incur expenses not budgeted for. For example, unplanned data needs can cause customers to exceed budgeted amounts, and this can result in adverse cost variances.
- **Relocation of data on servers.** Moving data to and from the Cloud can be time-consuming. It may negatively impact accessibility of Companies to their critical data for weeks, while large amounts of data are first transferred to the Cloud.
- **Cloud security.** Organizations and companies may risk security breaches when they decide to trust service providers with essential and confidential data. Additionally, some providers may not always be transparent about security issues and practices.

Types of Cloud

There are three main service models of Cloud namely, Infrastructure as a Service (IaaS), Platform as a Service (PaaS), and Software as a Service (SaaS). There are distinctions between the three and what they can offer in terms of storage and other services. There are circumstances where they interact with each other to form one comprehensive model of Cloud computing.

IaaS (Infrastructure as Service)

This is the most common service model of the Cloud as it offers the fundamental infrastructure of virtual servers, operating systems, and data storage drives. It allows for the flexibility, and scalability that many businesses seek with the Cloud. IaaS is a fully outsourced pay-for-use service and is available as a public, private or hybrid infrastructure.

PaaS (Platform-as-a-Service)

Web applications can be created quickly and easily via PaaS, and the service is flexible and efficient enough to support them. PaaS solutions are scalable for business environments where multiple developers are working on a single project. It is also handy for situations where an existing data source like CRM tools.

SaaS (Software as a Service)

This Cloud computing solution involves the deployment of software over the internet for the benefit of various businesses that pay via a subscription. It is a valuable tool for CRM and for applications that need a lot of web or mobile access – such as mobile sales management software. SaaS is managed from a central location so businesses don't have to worry about maintaining it themselves, and is ideal for short-term projects. The top Cloud service providers that offer all of these services stated above include Amazon Web Services (AWS), Microsoft Azure, Google Cloud, Alibaba Cloud, IBM Cloud, Oracle, Salesforce, SAP, Rackspace Cloud, and VMWare. The two most popular Cloud service providers are Amazon and Microsoft, followed by Google, Alibaba, and IBM.

"THE" CLOUD Service providers

These are service providers who make use of their own data centres to host Cloud computing-based infrastructure and platform services for business organizations and companies.

Service providers for Cloud customers are only charged only for the resources they consume. These resources include the amounts of time a service is rendered, or the storage capacity used**.**

Amazon Web Services (AWS)

Some of their services include Virtual Private Cloud, EC2, AWS Data Transfer, Simple Storage Service, DynamoDB, Elastic Compute Cloud, AWS Key Management Service, and Amazon Cloud Watch. The highest priority for AWS is Cloud security. No other Cloud provider offers as many options as Amazon.

Microsoft Azure

Microsoft Azure is one of the fastest-growing Clouds amongst its' contemporaries. MA was launched few years after the release of AWS and Google Cloud, yet it continues to put up stiff competition to other Cloud services providers. It offers a multitude of services within various categories including AI + Machine Learning, Analytics, Blockchain, Compute, Containers, Databases, Developer Tools, DevOps, Identity, Integration.

It has an exclusive offering of Microsoft's previous products and services in the Cloud and to boo it provides the most advanced and maximum offerings of intelligent products and services.

IBM Cloud

IBM Cloud developed by IBM is a set of Cloud computing services for businesses. It is quite similar to other Cloud service providers, the IBM Cloud includes IaaS, SaaS, and PaaS services via public, private, and hybrid Cloud models.

Alibaba Cloud

Alibaba offers various products and services in several categories, including Elastic Computing, Storage and CDN, Networking, Database Services, Security, Monitoring and Management, Domains and Websites, Analytics and Data Technology, Application Services, Media Services, Middleware, Cloud Communication, Apsara Stack, and Internet of Things.

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