CLOUD COMPUTING – TODAY'S FUTURE

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ABSTRACT

Cloud Computing is the latest of computing paradigms to change the way of using computing resources. Cloud computing provide computing as a "utility" to end users "as and when needed". Cloud computing is a business model that provide business platform. Cloud computing intends to make the internet the ultimate home of all computing resources-storage, computations, applications and allow end users to available them in quantities of his/her choice, of their preferences for duration of their linking. In other world web become the provision store for all your computing needs. This paper covers issues such as its concept, architecture, advantages, disadvantages and popular services.

Keywords: Cloud Computing, Performance Evaluation, Efficiency, Virtualization, Load Balancing.

I.INTRODUCTION

Cloud computing provides Internet-based computing that provides shared computer processing resources and data to computers and other devices on demand. It is a model for enabling universal, on-demand access to a shared pool of configurable computing resources which can be rapidly provisioned and released with minimal management effort. Cloud computing and storage solutions provide users and enterprises with various capabilities to store and method their data in either privately owned, or third-party data centers that may be located far from the user–ranging in distance from across a city to across the world. Cloud computing relies on sharing of resources to achieve consistency and budget of scale, similar to a utility (like the electricity grid) over an electricity network.

Cloud computing is the result of the growth and acceptance of existing technologies and models. The goal of cloud computing is to allow users to take benefit from all of these technologies, without the need for deep knowledge about or proficiency with each one of them. The cloud goals to cut costs, and helps the users focus on their main business instead of being impeded by IT obstacles. The main permitting technology for cloud computing is virtualization. Virtualization software separates a physical computing device into one or more "virtual" devices, each of which can be easily used and managed to perform computing tasks. With operating organization–level virtualization in essence creating a accessible system of multiple independent computing devices, idle computing resources can be allocated and used more efficiently. Virtualization provides the agility required to speed up IT operations, and reduces cost by increasing infrastructure utilization.

II. ARCHITECTURE

Generally, this architecture can be categorized into two parts : A. Front end B. Back end.

The front end and back end are connected to each other via a virtual network or the internet. There are other modules like middleware, cloud assets, etc, that are part of the cloud computing architecture.
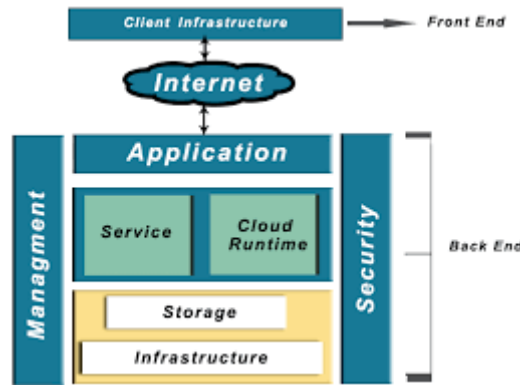
A. Front end : Front end is the side that is visible to the client, customer or user. It includes the client's computer system or network that is used for accessing cloud system. Different cloud computing systems have different user edges. For email plug-ins, support is driven from web browsers like Firefox, Chrome and Internet Explorer.

B. Back end : Back end is the side used by service provider. It includes various servers, computers, data storage systems and virtual machines that together constitutes the cloud of computing services. This system can include different types of computer software package. Each application in this system is accomplished by its own dedicated server. The back end side has some responsibilities to fulfill for the client:

• To provide security tool, traffic control and protocols.

• To employ protocols that connects networked computers for communication.

The back end consists of resources that provide three standard service models as NIST that are: 1) Infrastructure as a service (IaaS) 2) Platform as a service (PaaS) 3) Software as a service (SaaS)
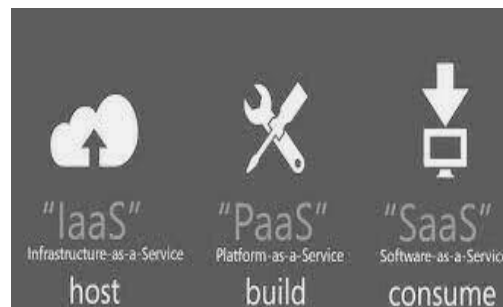

Fig 2: Service Models Of Cloud

III. ADVANTAGES

Agility recovers with users' skill to re-provision technological infrastructure properties.

Cost reductions claimed by cloud providers. A public-cloud transfer model converts capital expenditure to operational expenditure. This supposedly lowers blocks to entry, as infrastructure is normally provided by a third party and need not be purchased for one-time or infrequent intensive computing tasks. Pricing on a utility computing basis is fine-grained, with usage-based options and less IT skills are required for implementation (in house). The e-FISCAL project's state-of-the-art repository contains several articles looking into cost aspects in more detail, most of them closing that costs savings depend on the type of activities supported and the type of infrastructure available in-house.

Performance is monitored, and consistent and loosely architectures are constructed using web services as the system interface.

Reliability develops with the use of multiple redundant sites, which makes well-designed cloud computing suitable for business continuity and disaster recovery.

Scalability and elasticity via dynamic ("on-demand") provisioning of capitals on a fine-grained, self-service basis in near real-time (Note, the VM startup time varies by VM type, location, OS and cloud providers), without users having to engineer for peak load. This gives the ability to scale up when the usage need growths or down if resources are not being used.

IV. DISADVANTAGES

Security and Privacy

Any discussion including data must address security and privacy, especially when it comesto handling sensitive data. We mustn't forget Code Space and what happened to it after its AWS EC2 console was hacked and its data eventually deleted, forcing the company to close doors forever. By leveraging a remote cloud established infrastructure, a company basically outsources everything it has. Limited control and flexibility to changing degrees (depending on the particular service) cloud users have limited control over the function and execution of their hosting infrastructure. Cloud provider EUL as and management policies might impose limits on what customers can do with their deployments. Customers are also limited to the control and management of their applications, data, and facilities, but not the backend infrastructure. Of course, none of this will normally be a problem, then it should be taken into account.

Downtime This may be one of the worst disadvantages of cloud computing. No cloud provider, even the very best, would claim immunity to facility outages. Cloud computing systems are internet based, which means your contact is fully dependent on your Internet connection. And, like any hardware, cloud platforms themselves can fail for any one of a thousand reasons.

V. APPLICATION

1. Infrastructure as a service (IaaS) and **platform as a service (PaaS)**

When it comes to IaaS, using ancurrent infrastructure on a pay-per-use scheme seems to be an obvious choice for companies saving on the cost of investing to get, manage and maintain an IT infrastructure. There are also examples where organizations turn to PaaS for the same reasons while also seeking to growth the speed of development on a ready-to-use platform to deploy applications.

2. Private cloud and hybrid cloud

Among the many reasons for using cloud, there are two situations where organizations are looking into ways to assess some of the applications they intend to deploy into their environment through the use of a cloud (specifically a public cloud). While in the case of test and development it may be limited in time, adopting a hybrid cloud approach allows for testing application workloads, therefore providing the comfort of anbackground without the initial investment that might have been rendered useless should the workload testing fail.

Another use of hybrid cloud is also the ability to expand during periods of limited peak usage, which is often preferable to hosting a large infrastructure that might seldom be of use. An institute would seek to have the additional capacity and availability of an environment when needed on a pay-as you-go basis.

3. Test and development

Probably the best scenario for the use of a cloud is a test and development environment. This entails securing a budget, setting up your environment through physical assets, important manpower and time. Then comes the installation and configuration of your platform. All this can often spread the time it takes for a project to be completed and stretch your milestones.

With cloud computing, there are now freely available environments tailored for your needs at your fingertips. This often combines, but is not limited to, automated provisioning of physical and virtualized resources.

4. Big data analytics

One of the aspects offered by leveraging cloud computing is the ability to tap into vast quantities of both structured and unstructured data to harness the benefit of extracting business value.

Retailers and suppliers are now extracting information derived from consumers' buying patterns to target their advertising and marketing campaigns to a particular part of the population. Social networking platforms are now providing the basis for analytics on behavioral patterns that organizations are using to derive meaningful information.

5. File storage

Cloud can offer you the possibility of storing your files and accessing, storing and retrieving them from any web-enabled interface. The web services interfaces are usually simple. At any time and place you have high availability, speed, scalability and security for your environment. In this scenario, organizations are only paying for the amount of storage they are actually consuming, and do so without the worries of overseeing the day-to-day maintenance of the storage infrastructure.

There is also the possibility to store the data either on or off premises depending on the regulatory compliance requirements. Data is stored in virtualized pools of storage hosted by a third party based on the customer the provisions requirements.

VI. POPULAR SERVICES

A.   Icloud

   Apple's Icloud allows you to store music, documents, photos and other files via wi-fi.

B.   Google cloud connect for Microsoft office

   Google cloud allows various users to relate using Microsoft office.

C.   IBM smart cloud

   IBM smart cloud offers numerous services for IT firms such as developing applications in the cloud or using

the cloud as a backup for your company files.

VII. CONCLUSION

Cloud computing is a better way to run your business. Instead of running your apps yourself they run on shared data centre. When you use any app that runs in the cloud you just login, convert and start using it. Finally cloud apps don't eat up your valuable IT resources so your CFO will love it.Cloud Computing is the future of Information Technology. The current industries trend is being exchanging and organization are moving from on-premises to Cloud. Cloud Computing solution is easy to provision, cost effective, agile, scalable and reliable.

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