**INTRODUCTION**

In Today’s world Utilization of resources effectively is very necessary.

Traditional IT has its own challenges of

1.Monitoring

2.Orchestration

3.Utilization

4.Scaling

5.Redundancy etc.

It’s a difficult task to manage all these separately.

Cloud Computing gives one Common Platform to **manage, monitor, setup, scale**

On demand resources can be obtained in mins instead of weeks

Saves Time, Saves Cost most important it paves way for 24/7 availability of all resources.

**Benefits**

1.Flexibility

2.Disaster recovery

3.Automatic software updates

4.Capital-expenditure Free

5.Work from anywhere

6.Increased collaboration

7.Document control, Competitiveness, Security, Environmentally friendly

8.Choice of applications etc.

**CHALLENGES AND ISSUES**

Cloud computing challenges have always been there. A smooth transition entails a thorough understanding of the benefits as well as challenges involved. Like any new technology, the adoption of cloud computing is not free from issues. Some of the most important challenges are as follows.

**1. Meeting federal security requirements**

The main challenge to cloud computing is how it can manage the [security and privacy](https://cloudtweaks.com/2016/10/ddos-attack-shook-world/) concerns of businesses thinking of adopting it. The fact that the valuable enterprise data will reside outside the corporate firewall raises serious concerns. Hacking and various attacks to cloud infrastructure would affect multiple clients even if only one site is attacked. These risks can be mitigated by using security applications, encrypted file systems, data loss software, and buying security hardware to track unusual behavior across servers.

**2.Integration**

 Many applications have complex integration needs to connect to other cloud applications as well as other on - premise applications.  These include integrating existing cloud applications with existing enterprise applications and data structures. There is a need to connect the cloud application with the rest of the enterprise in a simple, quick and cost-effective way.

**3. Interoperability and Portability**

Businesses should have the leverage of migrating in and out of the cloud and switching providers whenever they want, and there should be no lock-in period. Cloud computing services should have the capability to integrate smoothly with the on - premise IT.

## 4. Reliability and Availability

Cloud providers still lack round-the-clock service; this results in frequent outages. It is important to monitor the service being provided using internal or third-party tools. It is vital to have plans to supervise usage, SLAs, performance, robustness, and business dependency of these services.

**5.Overcoming cultural barriers**

Agency culture may act as an obstacle to implementing cloud solutions. For example, a Department of State official explained that public leaks of sensitive information have put the agency on a more risk-averse footing, which makes it more reluctant to migrate to a cloud solution.

**approaches to achieve data strategy goals**

A common reason for adopting cloud services is to free up internal staff resource – we need to be more innovative and consider new ways of working to make greater use of cloud services and so free up more staff across the sector to support institutional innovation in key areas such as teaching and learning and research. The following are the main goals of cloud computing.

**1.Infinite storage**

As of autumn, 2014 both Google and Microsoft offer unlimited file storage as part of their cloud collaboration suites. Google also offers unlimited email storage. This is a hugely significant development that will affect institutional decision-making around hardware replacement cycles for storage area networks (SANs) and network attached storage (NAS) for the enterprise.

**2.Elasticity**

Cloud computing has particular potential to help institutions deal with ‘success disasters’ like a website that is suddenly very popular. Examples include peak loading due to students going through clearing or submitting assignments online.

**3.Cloudbursting**

A number of orchestration tools are now available that give institutions ways to burst out beyond their own in-house capacity, eg by moving workloads from virtual machines running on in-house hardware to public cloud providers’ services. At present this is rarely smooth or seamless.

**4.Packaging and reusability**

Hand in hand with the rise of cloud computing we have seen increasing interest in tools such as [Docker](http://docker.io/) and [Vagrant](https://www.vagrantup.com/) for packaging and deployment of application software and micro services. These permit the developer to create prototypes on their own local hardware and then push the outputs onto public cloud providers.

It has become nigh on ubiquitous through consumer products and services, but is still an emerging technology for a large proportion of institutions.