



## Cloud Computing: Advantages and Disadvantages

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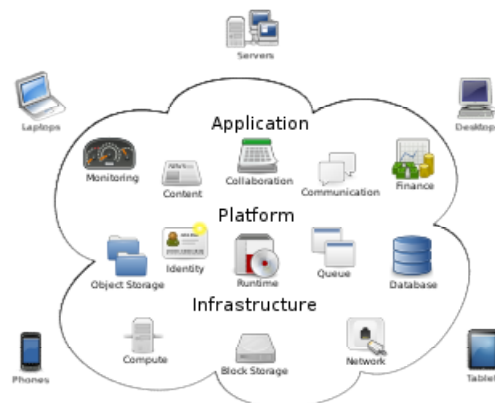
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### Abstract

Today is the era of Cloud Computing Technology in IT Industries. Cloud computing which is based on Internet has the most powerful architecture of computation. It counts compilation of integrated and networked hardware, software and internet infrastructure. Cloud computing provides a shared pool of computing resources that can be rapidly and elastically provisioned and released based on users' demand to serve a wide and constantly expanding range of information processing needs. In this paper, I have given a brief of evaluation of cloud computing along with its advantages and disadvantages. Due to its tremendous advantages this technology is maturing rapidly and is being adopted in many applications including government, business, and education. Users may take advantage of clouds not only in terms of cost but also in terms of efficiency, reliability, portability, flexibility, and security. We also discuss future challenges to cloud education.

Like real clouds which are the collection of water molecules, the term cloud in cloud computing is the collection of computer networks. Cloud computing is the on-demand availability of computer system resources, especially data storage (cloud storage), applications, servers (physical servers and virtual servers), development tools, networking capabilities, and more—hosted at a remote data center managed by a cloud services provider (or CSP) without direct active management by the user. Large clouds often have functions distributed over multiple locations, each location being a data center. Cloud computing relies on sharing of resources to achieve consistency and economies of scale, typically using a "pay-as-you-go" model which can help in reducing capital expenses but may also lead to unexpected operating expenses for unaware users.

The CSP makes these resources available for a monthly or yearly subscription fee or bills them according to usage.





Simply put, cloud computing is the delivery of computing services—including servers, storage, databases, networking, software, analytics, and intelligence—over the Internet (“the cloud”) to offer faster innovation, flexible resources, and economies of scale. You typically pay only for cloud services you use, helping lower your operating costs, run your infrastructure more efficiently and scale as your business needs change.

### **Top benefits of cloud computing -**

Cloud computing is a big shift from the traditional way businesses think about IT resources. Here are some common reasons organisations are turning to cloud computing services:

#### **1] Cost**

Cloud computing eliminates the capital expense of buying hardware and software and setting up and running on-site data centers—the racks of servers, the round-the-clock electricity for power and cooling, the IT experts for managing the infrastructure. It adds up fast. Cloud lets us offload some or most of the costs and effort of purchasing, installing, configuring, and managing your own on-premises infrastructure.

#### **2] Speed**

Most cloud computing services are provided self service and on demand, so even vast amounts of computing resources can be provisioned in minutes, typically with just a few mouse clicks, giving businesses a lot of flexibility and taking the pressure off capacity planning. With cloud, your organization can start using enterprise applications in minutes, instead of waiting weeks or months for IT to respond to a request, purchase and configure supporting hardware, and install software. Cloud also lets you empower certain users—specifically developers and data scientists—to help themselves to software and support infrastructure.

#### **3] Reliability**

Cloud computing makes data backup, disaster recovery and business continuity easier and less expensive because data can be mirrored at multiple redundant sites on the cloud provider’s network.

#### **4] Performance**

The biggest cloud computing services run on a worldwide network of secure data centers, which are regularly upgraded to the latest generation of fast and efficient computing hardware. This offers several benefits over a single corporate data center, including reduced network latency for applications and greater economies of scale.

#### **5] Productivity**

On-site data centers typically require a lot of “racking and stacking”—hardware setup, software patching, and other time-consuming IT management chores. Cloud computing removes the need for many of these tasks, so IT teams can spend time on achieving more important business goals.

#### **6] Global scale**

The benefits of cloud computing services include the ability to scale elastically. In cloud speak, that means delivering the right amount of IT resources—for example, more or less computing power, storage, bandwidth—right when it is needed and from the right geographic location.

#### **7] Security**



Many cloud providers offer a broad set of policies, technologies and controls that strengthen your security posture overall, helping protect your data, apps and infrastructure from potential threats.

### **Disadvantages of cloud computing –**

Despite the general hype on the subject across the IT world, there can be disadvantages to cloud computing they are as

#### **1] Cloud downtime**

Downtime is often cited as one of the biggest disadvantages of cloud computing. Since cloud computing systems are internet-based, service outages are always an unfortunate possibility and can occur for any reason. The internet is the only way to cloud computing. When there is no internet connection in your place, or the internet path to the cloud provider is in trouble, automatically access to your cloud computing machine will be disconnected. Now this is where the biggest obstacle is happening in developing countries and remote areas that do not have good internet access. And the weakness of public cloud is where everyone accesses the same server and server and will increase the risk of attack, and down the server.

The cloud, like any other IT set up, can experience technical problems such as reboots, network outages and downtime. These events can incapacitate business operations and processes, and can be damaging to business.

#### **2] The level of security**

Secrecy and security are among the most doubtful things in cloud computing. By using a cloud computing system means we are fully entrusted with the security and confidentiality of data to companies that provide cloud computing servers. When you experience a problem, you cannot sue the server for errors in the data. When you experience a problem, you cannot sue the server for errors in the data.

#### **3] Limited control**

The cloud service provider owns, manages and monitors the cloud infrastructure. You, as the customer, will have minimal control over it. You will be able to manage the applications, data and services operated on the cloud, but you won't normally have access to key administrative tasks, such as updating and managing firmware or accessing server shell. In order to mitigate risks, it may help to carry out a risk assessment before you hand over any control to a service provider.

#### **4] Vulnerability to attack**

In cloud computing, every component is online, which exposes potential vulnerabilities. Even the best teams suffer severe attacks and security breaches from time to time. Since cloud computing is built as a public service, it's easy to run before you learn to walk. After all, no one at a cloud vendor checks your administration skills before granting you an account: all it takes to get started is generally a valid credit card.

### **Types of cloud computing**

Not all clouds are the same and not one type of cloud computing is right for everyone. Several different models, types and services have evolved to help offer the right solution for your needs. First, user need to determine the type of cloud deployment or cloud computing architecture, that user cloud services will be implemented on. There



are three different ways to deploy cloud services: on a public cloud, private cloud or hybrid cloud.

#### 1] **Public cloud**

Public clouds are owned and operated by a third-party cloud service providers, which deliver their computing resources like servers and storage over the Internet. Microsoft Azure is an example of a public cloud. With a public cloud, all hardware, software and other supporting infrastructure is owned and managed by the cloud provider. You access these services and manage your account using a web browser. Learn more about the public cloud.

#### 2] **Private cloud**

A private cloud refers to cloud computing resources used exclusively by a single business or organisation. A private cloud can be physically located on the company's on-site data center. Some companies also pay third-party service providers to host their private cloud. A private cloud is one in which the services and infrastructure are maintained on a private network. Learn more about the private cloud.

#### 3] **Hybrid cloud**

Hybrid clouds combine public and private clouds, bound together by technology that allows data and applications to be shared between them. By allowing data and applications to move between private and public clouds, a hybrid cloud gives your business greater flexibility, more deployment options and helps optimise your existing infrastructure, security and compliance. Learn more about the hybrid cloud.

### **Types of cloud services: IaaS, PaaS, serverless and SaaS**

Most cloud computing services fall into four broad categories: infrastructure as a service (IaaS), platform as a service (PaaS), serverless and software as a service (SaaS). These are sometimes called the cloud computing stack because they build on top of one another. Knowing what they are and how they are different makes it easier to accomplish your business goals.

#### 1] **Infrastructure as a service (IaaS)**

The most basic category of cloud computing services. With IaaS, you rent IT infrastructure—servers and virtual machines (VMs), storage, networks, operating systems—from a cloud provider on a pay-as-you-go basis.

#### 2] **Platform as a service (PaaS)**

Platform as a service refers to cloud computing services that supply an on-demand environment for developing, testing, delivering and managing software applications. PaaS is designed to make it easier for developers to quickly create web or mobile apps, without worrying about setting up or managing the underlying infrastructure of servers, storage, network and databases needed for development.

#### 3] **Serverless computing**

Overlapping with PaaS, serverless computing focuses on building app functionality without spending time continually managing the servers and infrastructure required to do so. The cloud provider handles the setup, capacity planning and server management for you. Serverless architectures are highly scalable and event-driven, only using resources when a specific function or trigger occurs.



#### 4] **Software as a service (SaaS)**

Software as a service is a method for delivering software applications over the Internet, on demand and typically on a subscription basis. With SaaS, cloud providers host and manage the software application and underlying infrastructure and handle any maintenance, like software upgrades and security patching. Users connect to the application over the Internet, usually with a web browser on their phone, tablet or PC.

You are probably using cloud computing right now, even if you don't realise it. If you use an online service to send email, edit documents, watch movies or TV, listen to music, play games or store pictures and other files, it is likely that cloud computing is making it all possible behind the scenes. The first cloud computing services are barely a decade old, but already a variety of organisations—from tiny startups to global corporations, government agencies to non-profits—are embracing the technology for all sorts of reasons.

#### **References –**

- 1] <https://www.ibm.com/in-en/cloud/learn/cloud-computing>
- 2] [https://en.wikipedia.org/wiki/Cloud\\_computing](https://en.wikipedia.org/wiki/Cloud_computing)
- 3] <https://azure.microsoft.com/en-in/overview/what-is-cloud-computing/#uses>
- 4] <https://www.nibusinessinfo.co.uk/content/disadvantages-cloud-computing>
- 5] <https://cloudacademy.com/blog/disadvantages-of-cloud-computing/>
- 6] <https://faun.pub/10-disadvantages-risks-of-cloud-computing-35111de75611>