Introduction to Cloud Computing

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What is Cloud Computing?

The term **cloud** refers to a network or the internet.

It is a **technology** that uses remote servers on the internet to store, manage, and access data online rather than local drives.

The data can be anything such as files, images, documents, audio, video, and more.

Cloud Computing

What is Cloud Computing?

Cloud computing is the delivery of computing resources as a service, meaning that the resources are owned and managed by the cloud provider rather than the end user.

Those resources may include anything from browser-based software applications (such as **Tik Tok** or Netflix), third party data storage for photos and other digital media (such as **iCloud** or **Dropbox**), or third-party servers used to support the computing infrastructure of a business, research, or personal project.

Operations that we can do using cloud computing

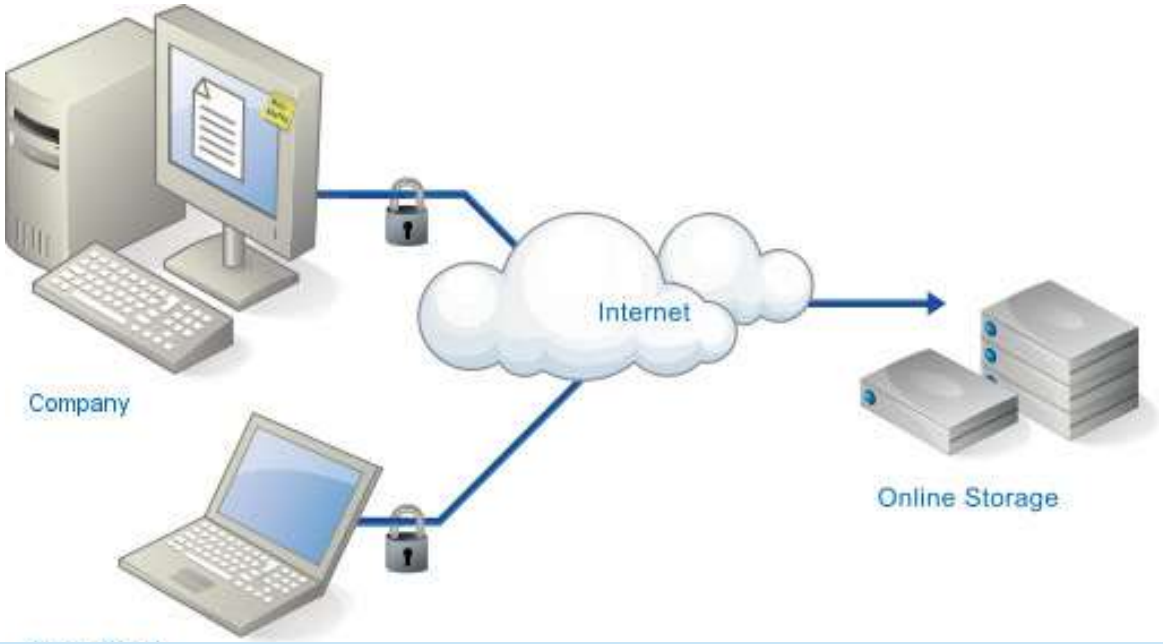
There are the following operations that we can do using cloud computing:

- Developing new applications and services

Operations that we can do using cloud computing

There are the following operations that we can do using cloud computing:

- Storage, back up, and recovery of data



Operations that we can do using cloud computing

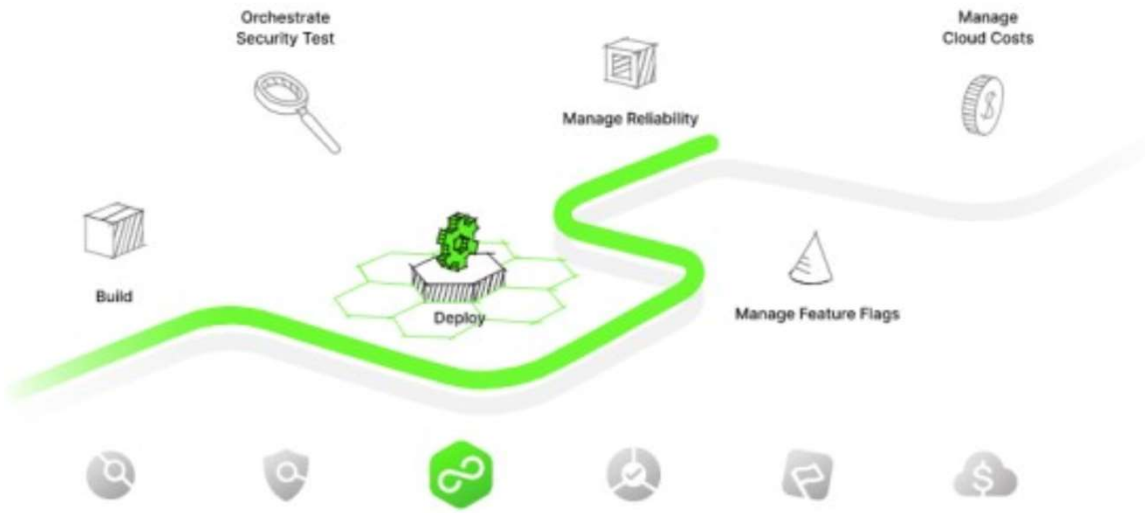
There are the following operations that we can do using cloud computing:

- Hosting blogs and websites

Operations that we can do using cloud computing

There are the following operations that we can do using cloud computing:

- Delivery of software on demand



Operations that we can do using cloud computing

There are the following operations that we can do using cloud computing:

- Analysis of data

Operations that we can do using cloud computing

There are the following operations that we can do using cloud computing:

- Streaming videos and audios

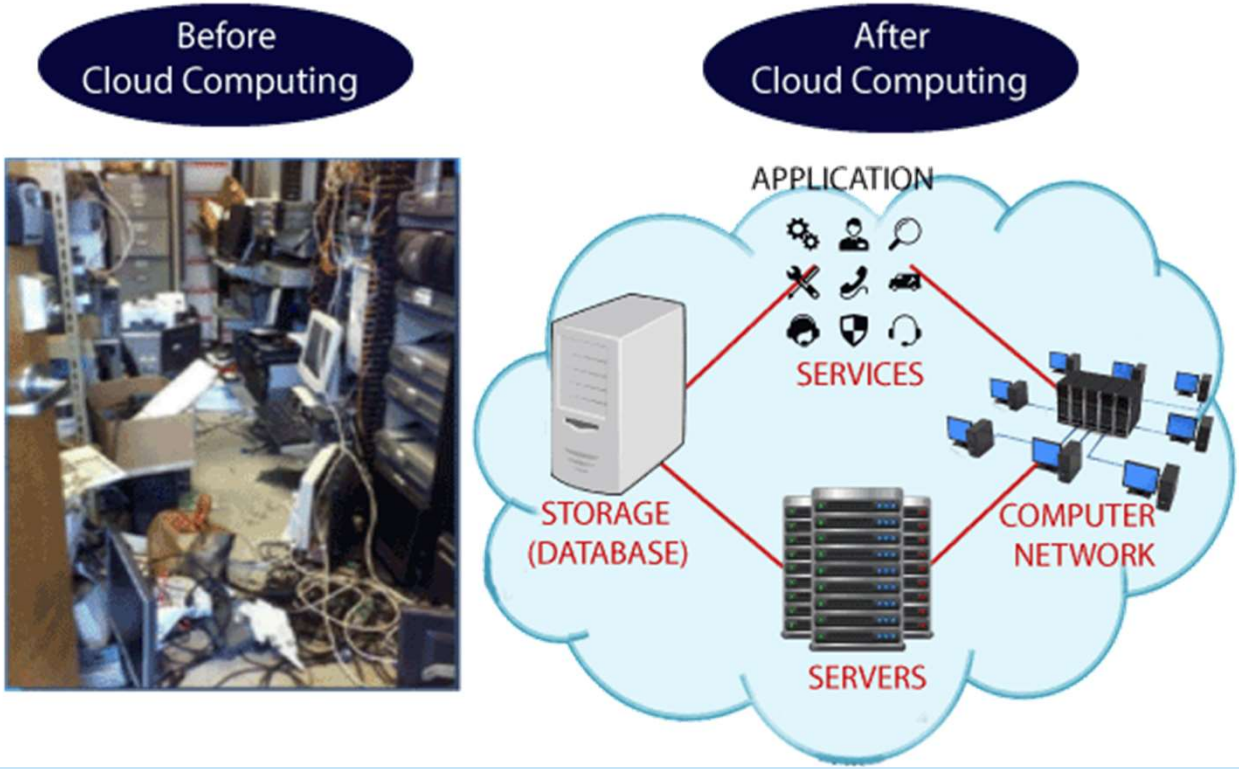
Why Cloud Computing?

Small as well as large IT companies, follow the traditional methods to provide the IT infrastructure. That means for any IT company, we need a **Server Room** that is the basic need of IT companies.

In that server room, there should be a database server, mail server, networking, firewalls, routers, modem, switches, QPS (Query Per Second means how much queries or load will be handled by the server), configurable system, high net speed, and the maintenance engineers.

To establish such IT infrastructure, we need to spend lots of **money**. To overcome all these problems and to reduce the IT infrastructure cost, **Cloud Computing** comes into existence.

Before the broad proliferation of cloud computing, businesses and general computer users typically had to **buy** and **maintain** the software and hardware that they wished to use.



With the growing availability of cloud-based applications, storage, services, and machines, businesses and consumers now have access to a wealth of on-demand computing resources as internet-accessed services.

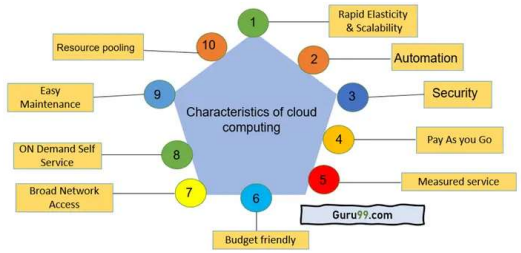
- Shifting from on-premise software and hardware to networked remote and distributed resources means cloud users no longer have to invest the labor, capital, or expertise required for buying and maintaining these computing resources themselves.

- This unprecedented access to computing resources has given rise to a new wave of cloud-based businesses, changed IT practices across industries, and transformed many everyday computer-assisted practices.

- With the cloud, individuals can now work with colleagues over video meetings and other collaborative platforms, access entertainment and educational content on demand, communicate with household appliances, hail a cab with a mobile device, and rent a vacation room in someone's house.

Cloud Computing

Characteristics of Cloud Computing



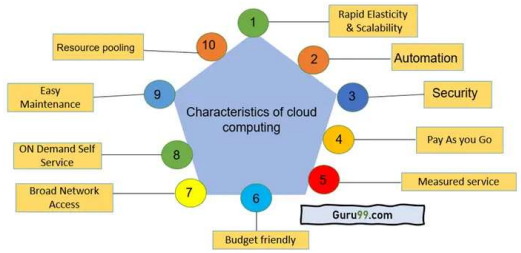
The characteristics of cloud computing are given below:

Agility (ability to move quickly and easily)

The cloud works in a distributed computing environment. It shares resources among users and works very fast.

In a cloud computing context, agility often refers to developing, testing rapidly, and launching applications that drive business growth in a constantly changing IT environment.

Characteristics of Cloud Computing



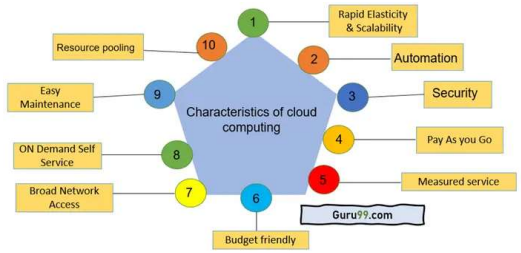
The characteristics of cloud computing are given below:

On-demand self-service

Cloud computing delivers on-demand service.

It provides the feature of monitoring server uptime with computing capabilities to the end-users.

Characteristics of Cloud Computing



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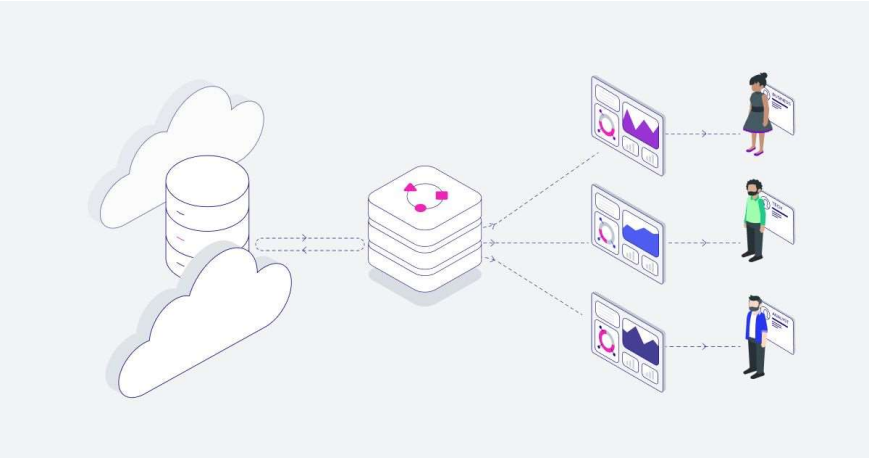
On-demand self-service

Cloud computing provides pre-defined network storage that enables the end-users to monitor their computing capabilities.

Cloud computing works on a self-service model.

They help end-users to make better decisions as they know how to use cloud computing services.

Characteristics of Cloud Computing



The characteristics of cloud computing are given below:

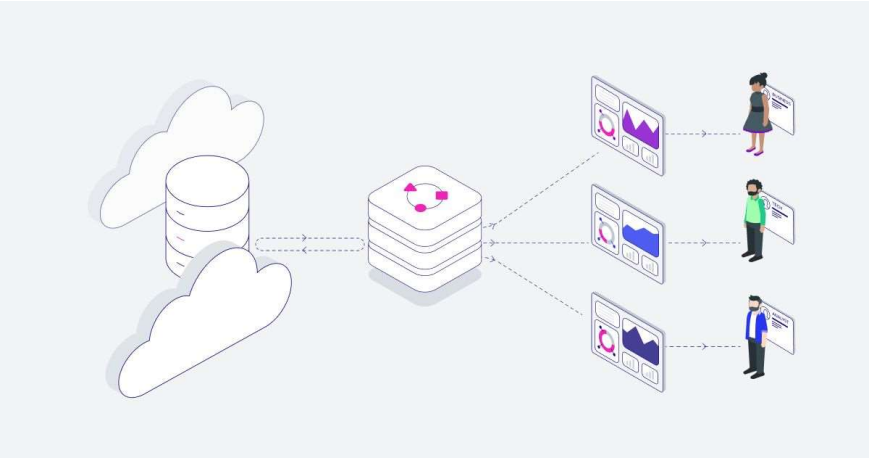
Multi-tenancy and resource pooling

One of the most important features of cloud technology is **multi-tenancy**.

It can be defined as the software architecture that enables the single program instance to provide services to multiple end-users.

This feature enables the usage of the same computing resources by multiple customers.

Characteristics of Cloud Computing



The characteristics of cloud computing are given below:

Broad network access

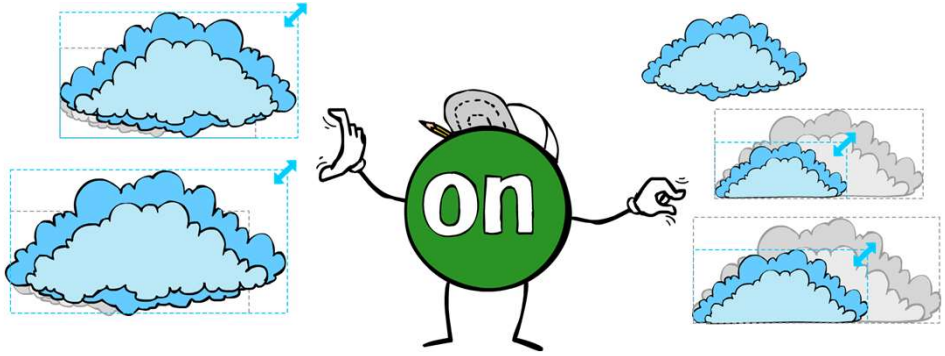
Cloud computing is achieved through standard computing mechanisms, and this feature helps promote heterogeneous thick and thin client platforms.

Examples of such platforms comprise mobile phones, laptops, dedicated workstations, and tablets.

The capabilities are delivered across multiple networks.

Cloud computing, therefore, helps break barriers and boundaries as they function across multiple geographies.

Characteristics of Cloud Computing



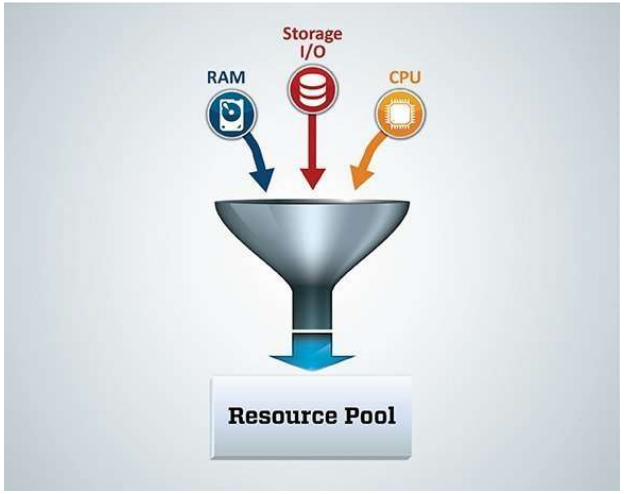
The characteristics of cloud computing are given below:

Rapid elasticity and scalability

The cloud computing capabilities can be released elastically.

It enables you to scale the cloud computing services inward and outward, and it helps to be commensurate with the dynamic demand posted by the end-users.

Characteristics of Cloud Computing

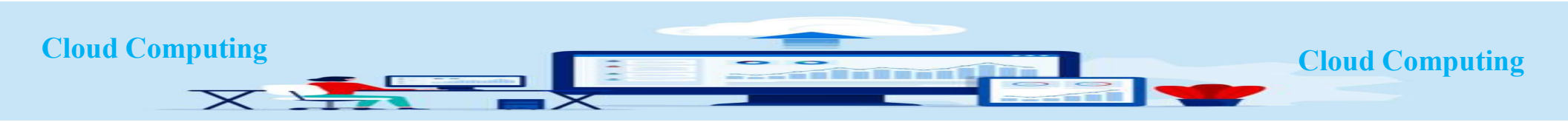


The characteristics of cloud computing are given below:

- Resource pooling (Merge)

Cloud computing delivers affordable resource pooling solutions.

With resource pooling, organizations can reduce substantial computing costs, and it helps in the dynamic pooling of resources that enable them to deliver computing services to several consumers.



Characteristics of Cloud Computing

The characteristics of cloud computing are given below:

Measured and reporting service

Cloud systems offer the metering capability to monitor, control, and optimize the usage of cloud resources. This feature can be defined as a **measured service**.

The metering capability is placed at some level of the abstraction of applicable services.

Therefore, this feature enables **transparency** for both the provider of service and the consumer.

Characteristics of Cloud Computing

The characteristics of cloud computing are given below:

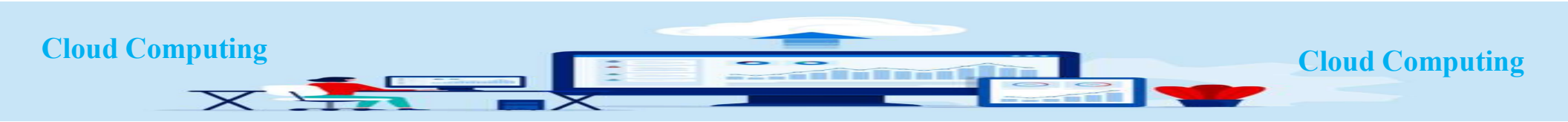
Automation

Through automation, IT teams and developers maintain and modify cloud services.

When cloud infrastructure is in place, it ensures minimum interaction from humans.

All the configurations are installed to ensure the monitoring and maintenance of cloud computing services, and such configurations are mostly automated.

Therefore, automation in cloud computing facilitates the faster expansion of cloud services.



Characteristics of Cloud Computing

The characteristics of cloud computing are given below:

Resilience (the capacity to recover quickly from difficulties)

Cloud computing delivers continuous server uptime, and hence it offers resilient services.

It offers the capability to **recover** from any service interruption.

The cloud service provider also develops strategies that boost disaster management, achieved by maintaining backup cloud nodes.

Characteristics of Cloud Computing

The characteristics of cloud computing are given below:

Work from any location

Cloud computing promotes the feature of remote working.

It helps the end-user function, work, or deliver remote services from any location.

Users are therefore able to access company data even on their smartphones or through laptops.

It also enables users to connect with one another quickly.

Characteristics of Cloud Computing

The characteristics of cloud computing are given below:

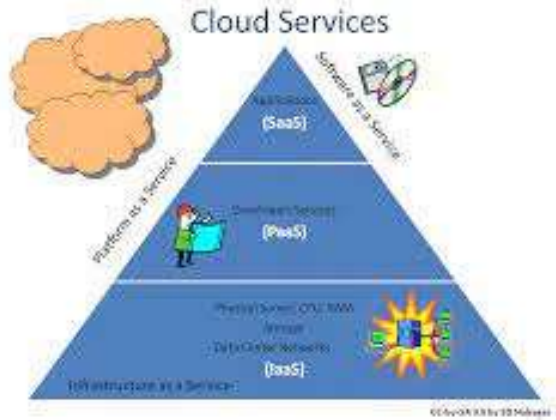
Comfortable payment structure

Cloud computing offers a flexible payment structure that plays an important role in the cost-cutting of organizations.

Pricing varies based on the features and functionalities chosen by a customer.

The payment options provided by the cloud service providers to the end-users are very simple and streamlined, which aides them in saving on substantial costs and time.

Characteristics of Cloud Computing



The characteristics of cloud computing are given below:

Service Excellence

Cloud computing delivers end-users with a wide range of services.

The cloud service providers share end users' service level agreements with their clients.

It also provides documentation on how they would achieve continuous availability and bandwidth of their clients' services.

Characteristics of Cloud Computing

The characteristics of cloud computing are given below:

Easy maintenance

Easy maintenance is one of the critical features of cloud computing.

The client is never involved in maintenance-related services. Its managed by the cloud computing provider.

The maintenance services are so well planned that the downtime remains significantly low.

Moreover, the cloud undergoes regular updates that help in capability optimization.

Characteristics of Cloud Computing

The characteristics of cloud computing are given below:

Flexibility

The end-users benefit from the flexibility offered by the cloud services when they host data in the dedicated cloud.

This ensures that the end-users can do away from traditional hosting techniques wherein they had to change or switch the service providers more frequently.

Characteristics of Cloud Computing

The characteristics of cloud computing are given below:

Economical

This feature is one of the key aspects of cloud computing.

It helps the big organizations to save a substantial amount on IT-related expenditure.

You need to pay a small fee to the third-party providers to ensure that the cloud space is adequately administered and maintained.

Characteristics of Cloud Computing

The characteristics of cloud computing are given below:

Availability

Cloud computing offers highly resilient services, and the cloud services are available for 24 x7 duration if the cloud resource faces downtime, the system recovers and starts within no time.

While the cloud service makes a recovery, information stored in servers, networks, and databases remains to be secured.

Since cloud services can be accessed from any geographical location, their services remain available most of the time.

Cloud Computing