

Popular ERP Packages:

1. SAP R/3
3. MFG/PRO

2. Baan
4. Oracle Applications

Benefits of ERP:

1. No duplication of data.
2. Centralised control. Data management can be centralised. Which can permit sharing of data across applications.
3. Consistency of data. The system avoids duplication of data. Data are entered only once and all related information is updated automatically.
4. Improved business performance.
5. Quick access to transaction data.
6. ERP saves lot of time for operating managers.

8.6 CLOUD COMPUTING

Cloud Computing means the use of computing resources as a service through networks like the Internet. Internet is generally visualized as "Clouds". Hence, use of Internet-based computing is called Cloud Computing. Cloud Computing is a combination of both software based and hardware based computing resources, provided through a Network Service. Cloud computing is an internet based computing where virtual shared servers provide software, infrastructure, platform devices and other resources and hosting to customers on pay -as you- use- basis.

User can access the services available in the cloud and can concentrate more on their core business process. They do not own physical infrastructure rather they rent the usages from third party service provider.

Cloud Computing is designed to enable Users —

- (a) to have anytime access to a shared pool of applications and resources,
- (b) to access data using a simple front end interface such as a Web Browser, and
- (c) to develop, deploy and manage their resources on the 'Internet/ Cloud, i.e. virtualization of resources.

Example: Google Apps is an example of Cloud Computing, which allows any User to access the application using a Web Browser. Amazon web services, Microsoft Azure. Dropbox, and Microsoft's Skydrive, Apple's iCloud and Google Drive are some more examples of cloud computing.

Objectives of Cloud Computing

The objectives of cloud-based Computing are as under—

1. To bring all available IT resources in an eco-friendly and cost-saving way,
2. To ensure and improve IT services as accessible and available from anywhere
3. To enlarge/upgrade/upscale the activities to match evolving business needs in a cost effective manner,
4. To integrate IT infrastructure and to create a manageable environment,
5. To reduce costs relating to Hardware and IT Energy/ Power consumption.

Features of Cloud Computing

- **Scalability:** Databases in Cloud are highly dynamic and scalable to meet different type of requirements of Clients.
- **Reliability:** Cloud Computing is more reliable because of minimal infrastructure failures.
- **Availability:** Since the Cloud / Internet utilizes the resources, availability of Servers are high. Users can access database resources through the Internet, from any place, for any number of times, etc.
- **Agility:** The agility (responsiveness) and efficiency of Cloud Computing is high, as the Cloud works in the 'Distributed Mode' environment which shares the resources and tasks.
- **Multi-sharing:** Since the Cloud works in a distributed and shared mode, multiple users and tasks from various applications can work more efficiently.
- **Multi-Device Access:** Cloud Computing permits secured access to data from any Network connected Device, e.g. Desktop PC, Notebook, Tablet, Smartphone, etc. The User can use any data or application in the Cloud without confining it to a particular device.
- **Maintenance:** Installation of Software Applications in the Client's system is not required. Thus, maintenance of Cloud Computing applications is easier.
- **Virtualization:** This feature allows Servers and Storage Devices to share, and utilize applications, by easy migration from one physical Server to another.
- **Performance:** System Performance and its interface with applications are consistently monitored under Cloud Computing. Loosely coupled architectures are constructed using web services.

- **Services in Pay Per Use Mode:** Service Level Agreements (SLA's) between the Cloud Service Provider and the user must be clearly defined as billing is based on pay per use mode. Application Programming Interfaces (APIs) may be offered to the Users for their access.
- **Independent:** Cloud Computing is an independent platform. There is no need to procure software.
- **Unlimited Data Storage:** Storing information in the Cloud / Internet leads to almost unlimited storage capacity, with no substantial increase in costs.

NIST Definition for Cloud Computing

The National Institute of Standards and Technology (NIST) is a measurement standards laboratory, and a non-regulatory agency of the United States Department of Commerce. Its mission is to promote innovation and industrial competitiveness.



Technical Definition: Cloud Computing

Cloud computing is a model for **enabling ubiquitous, convenient, on-demand network access to a shared pool of configurable computing resources** (e.g., networks, servers, storage, applications, and services) that can be rapidly provisioned and released with minimal management effort or service provider interaction.

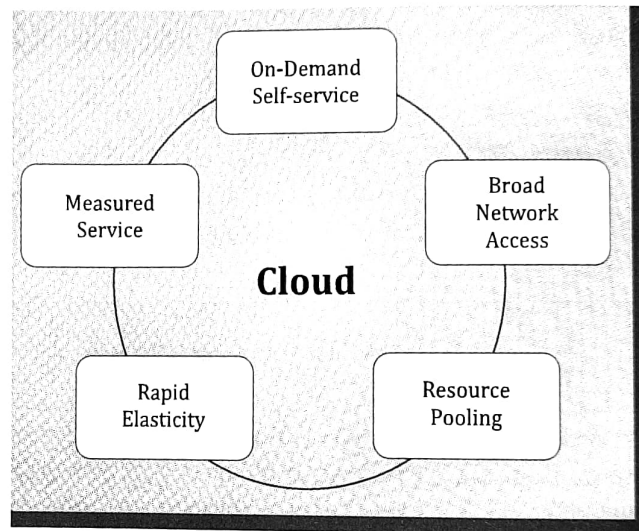
A cloud computing system may be described in terms of the following.

- Essential Characteristics
- Service Models
- Deployment models

Essential Characteristics:

- 1) **On-demand self-service:** on demand self-service feature makes it possible for user to access service anytime and from anywhere office, home or travel...
- 2) **Resource pooling:** large number of users shares the same overall pool of resources like storage, processing, memory, network bandwidth, and virtual machines, using what they need, without having to concern them with where those resources originate. This is called Location independence which is achieved through multi tenancy. Multi tenancy refers to a principle in software architecture where a single instance of the software runs on a server, serving multiple client-organizations (tenants).
Virtualization technology is used to host multiple isolated instances of an application on one or more servers.
- 3) **Rapid elasticity:** cloud services can be scaled rapidly as demand fluctuates. Users can quickly scale up or scale down their use of a computing resource in response to their immediate needs. This enables user to avail additional resources only when needed and release them back to provider when not required.
- 4) **Measured service:** Different metering is applied depending on the type of resource storage, processing, bandwidth, and active user accounts. Using the metering system, resource usage can be monitored, controlled, and reported, providing transparency for both the provider and consumer of utilized services. Example: The metering feature is used practically in all cloud computing offers. Whenever, a user creates a new account such as email or storage, user is allocated a certain amount of cloud resource and a continuous monitoring of its usage is done and shared with user.

- 5) **Broad network access:** A user is noticed to one location but can access resources from anywhere the network (typically the Internet) is available. A cloud computing has a liberty to access resources from multiple devices thereby increasing the access, consumption and productivity.



Deployment Models

NIST has identified four standard models, or types, of cloud computing that can be implemented to satisfy varying needs of users or providers.

These models vary in

- Where the hardware is located?
- What entity is responsible for maintaining the system?
- Who can use system resources?

These models are:

- Public cloud
- Private cloud
- Community cloud
- Hybrid cloud

Public cloud:

- In public cloud or external cloud computing, a provider supplies one or more cloud-computing services to a large group of independent customers, such as the general public.
- Customers use the service over the Internet through web browsers or other software applications.
- Providers usually sell those services on a metered basis, an approach that is sometimes called "utility computing."

Examples of services using a public cloud model: Internet backup, file synchronization, web-based media services.