

1) - The functionality of our applications would be limited and the development time would increase significantly since any function that it is not implemented as a module of one of the programming languages would have to be developed independently. occurs if there were no APIs.

- APIs allow us to save time when developing and help not to it is much more efficient and more convenient to use the capabilities of one of the APIs than to try to independently implement similar functionality.

- Example: The process of searching the online tickets like flights, trains & restaurants, we have a variety of options to choose from including sufficient dates and more.

In order to booking our online tickets we interact with suitable websites which are certified by Govt. to access their database and see if any seats/rooms are available on suitable dates and what costs might be for those flights, trains & restaurants.

- And mainly APIs recharge our applications with the latest technology. With APIs, you can teach our applications the latest image

recognition and natural language processing methods.

2) The cloud computing includes the layers are
~~IaaS, PaaS, SaaS~~. Based on these three layers we can devise three cloud computing models are derived.

→ IaaS - Infrastructure as a Service (IaaS) is a model that offers infrastructure-related services and is in charge of dealing with hardware problems, electricity and cooling in data centers.

Ex: Amazon webservices,
(Compute processing, storage, computing resources).

→ PaaS - Platform as a Service (PaaS) model takes the responsibilities of operating system, database management, server and programming language.

Ex: Google App Engine, Windows Azure
(Deploy customer created Applications)

→ SaaS - Software as a Service model handles software related issues & provides amenities to the cloud user.

Ex: Salesforce.com, CRM etc.
(Provides Applications and tools)

- Software applications are generally maintained by the service provider (or vendor)
- SaaS provider "the best cost-effective" applications because they do not need any maintenance at the customer side.
- They can easily scale up or scale down according to the conditions.
- SaaS is the most mature cloud model

3) False. It is economical.

The costs of buying hardware and software services as well as the setup and maintenance of external data centers, are greatly reduced with this technology. It also lowers the cost of diesel, server storage space, and infrastructure upkeep.

4) Network are consumed as resources when IaaS is selected.

IaaS establishes an internal business network in the form of a private cloud & virtual local networks.

5) On-demand self-service:

A consumer can unilaterally provision computing capabilities such as a ~~fixed~~ server time and network storage, as needed automatically without requiring human interaction with each service provider.

• Broad network access:

Capabilities are available over the network and accessed through standard mechanisms that promote use by heterogeneous thin or thick client platforms.

Resource pooling:

The provider's computing resources are pooled to serve multiple consumers using a multi-tenant model, with different physical & virtual resources dynamically assigned and reassigned according to consumer demand.

Rapid elasticity:

Capabilities can be elastically provisioned and released, in some cases automatically, to scale rapidly outward & inward commensurate with demand.

Measured service:

Cloud systems automatically control & optimize resource use by layering a metering capability at some level of abstraction appropriate to the type of service.

b) Elasticity goal is to align the resources allocated to the actual amount of resources required at any given time.

Scalability manages an application's evolving needs with the confines of the infrastructure by statically adding or removing resources as required to satisfy the application's demands.

Much of time, this is achieved by scaling up (vertical scaling) or scaling out (horizontal scaling).

Horizontal Scaling

Horizontal scaling is the process of increasing system capacity by adding more computing resources. Instead of trying to add more power to a single server, horizontal scaling adds multiple servers to handle the load.

Vertical Scaling

Vertical scaling elements are added to an existing application stack to increase performance. Examples of vertical scaling include upgrading hardware, adding memory, or adding more cores to a single server.

Cloud Computing

Cloud computing is a delivery model for IT resources. It allows for shared access to pooled resources via the Internet.