

Resource.
(Azure, Microsoft.com)

Unit I
Cloud Computing (KCS 212)

(1)

Definition of Cloud Computing:

Cloud computing is the delivery of

Computing services - including servers, storage, databases, networking, software, analytics and intelligence - over the internet (cloud) to offer faster innovation, flexible resources and economies of scale. You typically pay only for cloud services you use, helping you lower your operating costs, run your infrastructure more efficiently, and scale as your business needs change. ex. Dropbox, Microsoft Azure.

Top Most Cloud Computing Service Providers Name: (Beyond)

- (i) Amazon Web Service (AWS)
- (ii) Microsoft Azure
- (iii) ~~Microsoft~~ Google Cloud Platform (GCP)
- (iv) Oracle Cloud
- (v) Alibaba Cloud
- (vi) IBM Cloud

The cloud provider is always responsible for:

- (a) The Physical data center
- (b) Physical Network
- (c) The Physical Hosts.
- (d) Service and Storage
- (e) Physical Security.

~~Top benefits~~

(2)

Top benefits of cloud computing:

- | | | |
|------------------|------------------|--------------------|
| (a) Cost | (d) Productivity | (g) Security |
| (b) Speed | (e) Performance | (h) Customization |
| (c) Global scale | (f) Reliability | (i) Smaller staff. |

Grid Term:

Clustering: A cluster is a group of independent IT resources that are interconnected and work as a single system. System failure rates are reduced while availability and reliability are increased.

~~Grid~~ Grid computing:

A computing grid provides a platform in which computing resources are organized into one or more logical pools. These pools are collectively coordinated to provide a high performance distributed grid.

Grid:

Evolution of cloud computing:

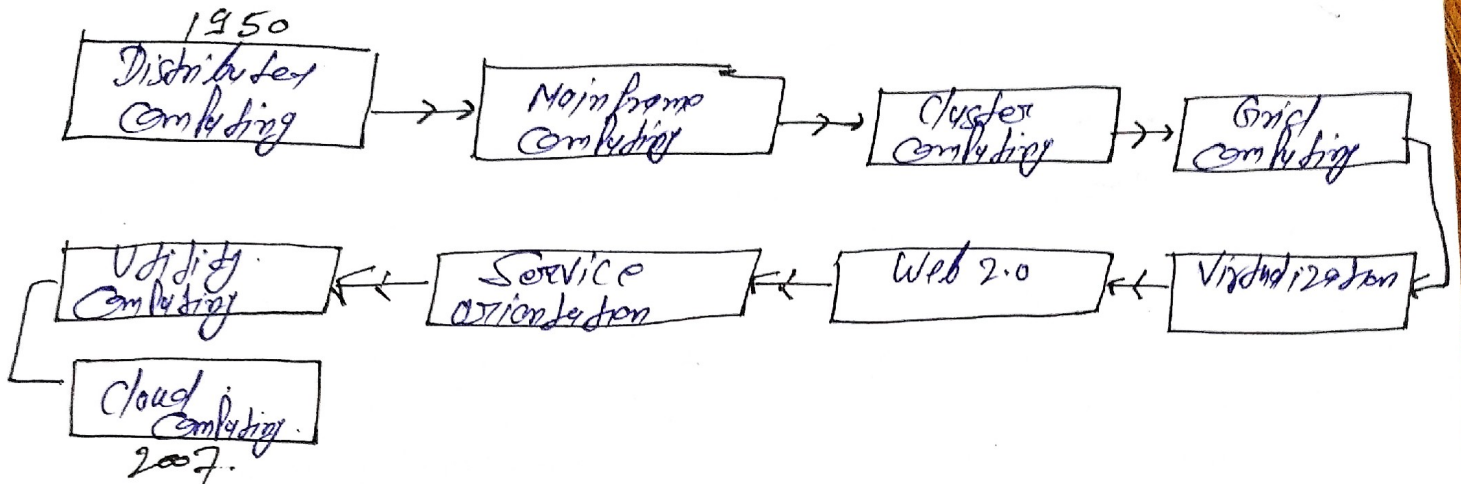
Cloud computing is all about providing computing services.

This idea first came in the 1950.

In the late 1990, Salesforce.com pioneered the ~~new~~ notion of bringing enterprise provisioning services into the enterprise.

In 2002, Amazon.com launched the Amazon web Services (AWS) platform. A suite enterprise-oriented services that provide enterprise.

Evolution

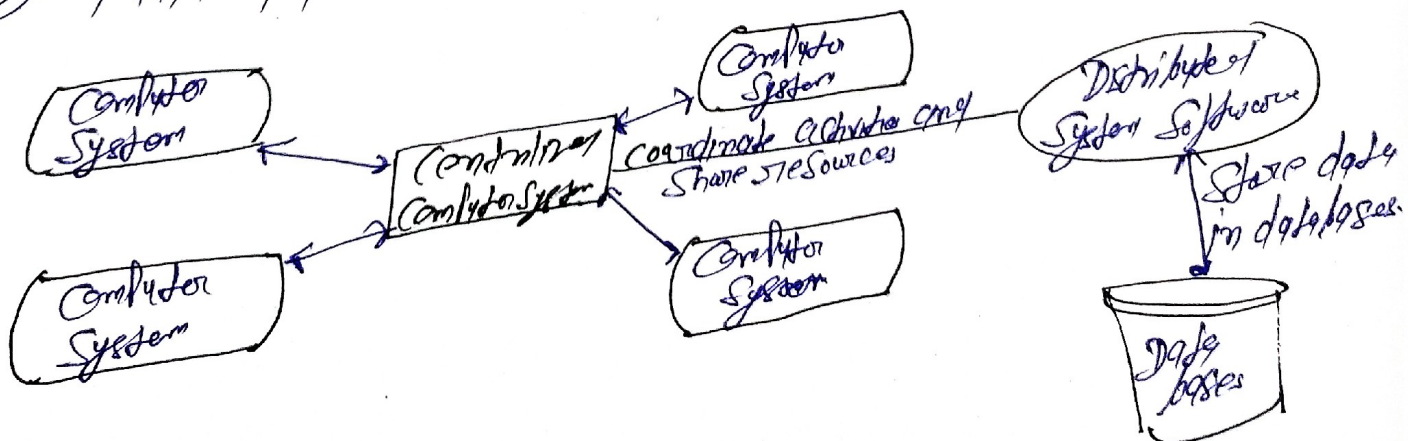


Distributed System: Also known as distributed computing and distributed databases, a distributed system is a collection of independent components located on different machines that share message with each other in order to achieve

Common Goals.

Advantages of distributed system:

- ① Unlimited Horizontal Scaling
- ② Low Latency
- ③ Fault Tolerance.



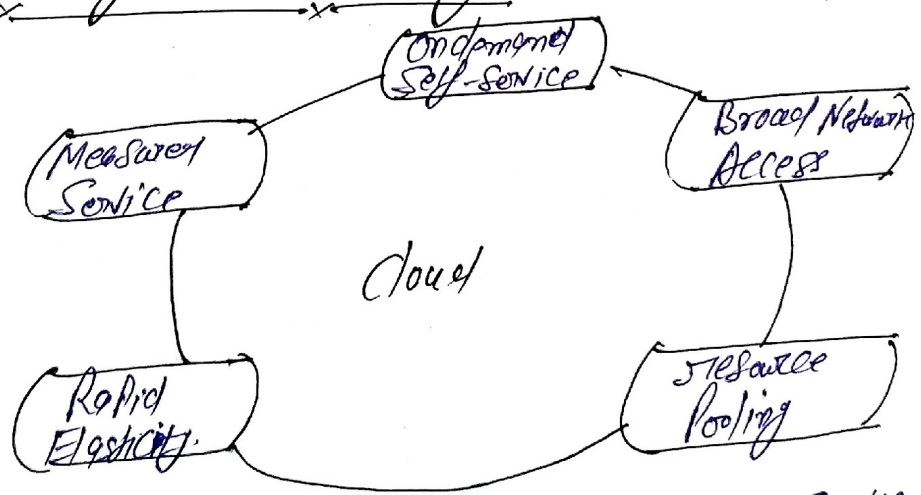
Parallel Computing:

Parallel Computing is a type of computing Architecture in which several processors simultaneously execute multiple, smaller calculation broken down from a overall larger, complex problem.

It is the use of multiple processing element simultaneously for solving any problem.

- advantage:
- ① It can be impractical to solve larger problem on Serial Computing.
 - ② It can take advantage of non-local resources when the local resources are finite.

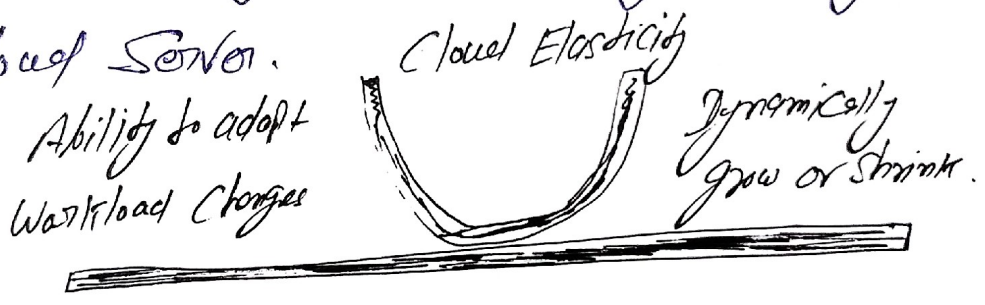
9th Characteristics of cloud computing:



- (1) on-demand self-service
- (2) Broad Network Access
- (3) Rapid elasticity
- (4) Resource Pooling
- (5) Measured Service
- (6) Multi-tenancy
- (7) Virtualization
- (8) Security
- (9) Automation

9th Elasticity in cloud:

Elastic computing is the ability of a cloud service provider to swiftly scale the usage of resources such as storage, infrastructure, computer processing, CPU memory, RAM, input/output bandwidth etc. Up and down to adapt to changing resource demands and dynamically meet workload requirements. Elastic computing is a part of cloud computing that entails dynamically managing the cloud server.



9th Key Components of Elastic Computing:

- ① Operating System Support
- ② Instances
- ③ Images
- ④ Storage Options
- ⑤ Networks

on-demand Provisioning:
① Cloud provisioning means allocating a cloud service provider's resource to a customer. It is a key feature of cloud computing.

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Conditio...
On-demand Provisioning

(6)

(2) Resource Provisioning is an important and challenging problem in the large-scale distributed systems such as cloud computing environment.

(3) Resource Provisioning means the Selection, deployment, and run-time management of software (eg. database server management system, load balancers) and hardware resource (eg. CPU, storage, and network) for ensuring guaranteed performance for applications.

(4) By provisioning the resource, the QoS parameters like availability, throughput, security, response time, reliability, performance etc.

There are two types:

- (1) Static Provisioning (2) Dynamic Provisioning

(1) Static Provisioning:

(i) For applications that have predictable and generally unchanging demands/workloads.

(ii) The customer is charged a flat fee or is billed on a monthly basis.

(iii) Dynamic Provisioning:

(i) In cases where demand by applications may change or vary,

"dynamic provisioning" techniques have been suggested whereby VM may be migrated on the fly to new compute nodes within the cloud.