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Assignment No.-1

Q.1 What is cloud computing & Explain its types with various services.

→

Cloud Computing :-

Cloud computing can be defined as the practice of using a network of remote servers hosted on the internet to store, manage and process data, rather than a local server or a personal computer.

- Types of Cloud Computing Services :

1. Software as A Service :- (SaaS) :

SaaS is a way of delivering services and applications over the internet. Instead of installing and maintaining software, we simply access it via the internet, freeing ourselves from complex software & hardware management.

2. Platform as a service : (PaaS) :-

Paas is a catagory of cloud computing that provides a platform & environment to allow developers to build applications & services over the internet. Paas services over the internet are hosted in the cloud & accesed by users simply via their web browser.

3. Infrastructure as a Service (IaaS) :-

Iaas is a service model that delivers computer infrastructure on an outsourced basis to support various operation. Typically IaaS is a service where Infrastructure is provided as an outsource to enterprises such as networking equipment devices, database and web servers.

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4. Anything as a Service :-

Most of the cloud services providers nowday offer anything as a service that is a compilation of all of the above services including some additional services.

Q.2 Discuss recent trends in cloud computing & related technologies.

→ Developing Quantum computing :-

As the amount of data collected increases there will be need to be a shift in processing time. Enter quantum-computing :- A high level of computing that looks to develop computers technology based on quantum theory. This advanced type of computing will help with the quickly organizing, catagorizing & analyzing ~~ed~~ cloud data.

Adapting Omni-cloud solution :-

While many companies have selected just one cloud provider, they may find themselves needing multiple cloud vendors to help with future problems.

This tactic is known as Omni-Cloud

Transforming SaaS to Intelligent SaaS :-

Software-as-a service (SaaS) will be infused with extra abilities and became Intelligent saas. Artificial Intelligence (AI) will lead the charge on this transformation.

Personalizing Cloud Experience :-

Right now cloud business are creating solution and application to meet individual client needs. If the company is using a hybrid or multi-Cloud Approach then offering personalized

option will be even more crucial.

Q.3 Perform Comparative study of different computing technologies [Parallel, Distributed, cluster, Grid, Quantum]

→

1] Parallel Computing :-

Parallel computing is a type of computing architecture in which several processors simultaneously execute multiple, smaller calculations broken down from all larger complex problem. Parallel computing refers to the process of breaking down larger problems into smaller independent, often similar parts that can be executed simultaneously by multiple processors communicating via shared memory, the result of which are combined upon completion as part of an overall algorithms.

2] Distributed Computing :-

Distributed computing refers to solve a problem over distributed autonomous computers and they communicate between them over a network. It is a computing technique which allows to multiple computers to communicate and work to solve a single problem.

3] Cluster computing :-

Cluster computing is a collection of tightly or loosely connected computers that work together, so that they act as a single entity. The connected computers execute operations all together thus creating the idea of a single system. The cluster computing are generally connected through fast local areas networks (LAN's)

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4] Grid Computing :-

Grid computing can be defined as a network of computers working together to perform a task would rather be difficult for a single machine All machines on that computer & network work under the same protocol to act as a virtual supercomputer. Grid computing is a subset of distributed computing.

5] Quantum Computing :-

Quantum computing is a new generation of computers based on quantum mechanics, a physical branch that studies atomic & subatomic particles These supercomputers perform computation at speed & levels an ordinary computer cannot handle.
Quantum computing is used in Healthcare Quantum computers help develop new drugs at a faster pace. DNA research also benefits greatly from using quantum computing.

Q.4 Do comparative study of different hosted & bare metal Hypervisors with suitable parameters along with their use in public/private cloud platform.

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Bare-metal Hypervisor :-

Bare metal hypervisor is a layer of software that we install directly on top of a physical server and its underlying hardware. There is no software or any operating system in between, hence the name bare metal hypervisor between, hence the name bare metal hypervisor.

Examples :-

VMware Vsphere with ESX

VMwaver is an industry-leading vendor of virtualization technology, and many large data centers

run on their products. It may not be the best cost effective solution for smaller IT environment.

Kernel-Based Virtual Machine :-

KVM is built-into linux as an added functionality It helps you to convert-linux Kernel into a hypervisor. It has direct access to hardware along with virtual machines it hosts.

Hosted Hypervisor :-

Hosted Hypervisors runs on host operating system that provides virtualization services, such as I/O device that support & memory management.

Such kind of hypervisors allows quick & easy access to a guest operating system alongside the host machine running. These hypervisors usually come with additional useful features for guest machine. Such tools enhance the co-ordination between the host machine & guest machine

Example :-

Oracle VM virtualBox :-

A free but stable product with enough features for personal use & most use cases for smaller businesses. VirtualBox is not resource demanding & it has proven to be a good solution for both desktop & server virtualization.

VMware workstation :-

VMware workstation for windows & linux. It is full of advanced features & has seamless integration with vsphere. This allows you to move your apps between desktop & cloud environment.

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Windows Virtual PC :-

It only supports windows 7 as a host machine & windows OS on guest machine. This includes multiple version of windows 7 & vista.

Q.5 What is service-level Aggrement (SLA) in cloud computing?

→ A service level Agreement (SLA) is the bond for performance negotiated between the cloud services provider & the client. Earlier in cloud computing all services level agreement were negotiated between a client & the service consumer.

Service-level-agreements are fundamentals as more organisation rely on external providers for their critical systems, applications & data. A cloud SLA ensures cloud providers meet certain entreprise level-requirements & provide customers with a clearly defined set deliverables.

Nowadays, with the initiation of large utility-like cloud computing providers, most service level agreements are standardized until a client-becomes a larger consumer of cloud service, service level agreements are also defined at different levels which are

- Customer-based SLA
- Service based SLA
- Multi-level SLA

GHARDA FOUNDATION

GHARDA INSTITUTE OF TECHNOLOGY, LAVEL

Department of Computer Engineering

Academic Year 2021-22

Evaluation Sheet

Assignment No.1

Class: Third Year Semester: VI

Subject: Skill base Lab Course: Cloud Computing Lab **Course Code:** CSL605

Name of Student: - Sanket Chandrashekhar Harvande Roll No.: __19_____

Sr. No.	Title of Experiments	Marks Obtained (5)	Remarks
1	Oral		
2	Timely Submission		
3	Neatness		
	Total		

Prof.M.A.Khandke & Prof.R.B.Pawar

Subject In-charge